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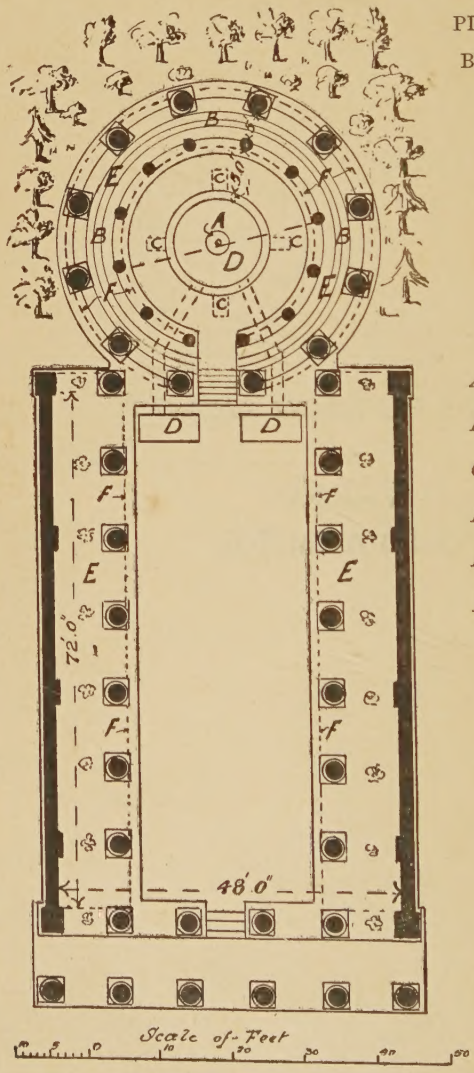
ON FARMING



PLAN OF THE BIRD-HOUSE AT CASINUM

A Island

B Staging

C Duck-Houses

D Ponds

E Aviaries

F Netting

SEE BOOK III, pp. 269-276

VARRO ON FARMING

M. TERENTI VARRONIS RERUM RUSTICARUM LIBRI TRES

TRANSLATED, WITH INTRODUCTION, COMMENTARY, AND EXCURSUS

BY

LLOYD STORR-BEST M.A. Lond.

LONDON
G. BELL AND SONS, LTD.
1912

UXORI

PREFACE

THIS translation of Varro's 'Rerum Rusticarum' is based on the 'Editio Minor' of Keil, which is the best text that we at present possess, and the most accessible to students. The numerous passages where I have ventured to adopt or propose a reading differing from that given by the great scholar are indicated and fully discussed either in the Commentary or Excursus. In excuse for the many alterations of his text which I have proposed, I would point out that Keil himself professes only to have restored the text of the Archetype, which is avowedly corrupt, to have made certain indubitable corrections, and to have cleared the ground for further emendation.

In rendering the Latin, I have aimed, above all things, at accuracy, and have tried to say in English what Varro actually said in Latin, not what I imagine he ought to have said, or might have said, had he written in English. Graceful paraphrase would have been quite out of place in the case of an author who has no graces of style, is valuable principally for his matter, and is very difficult to understand.

To other translations I am not at all indebted. Those with which I am acquainted—the French of Nisard, the Italian of Pagani, and the English of Clarke (1800)—are not good, and were made by men evidently unaccustomed to Varro's peculiar and archaic diction.

The Commentary proceeds from an independent examination of the original sources used by Varro, and of those authors who borrowed from him, though, as will be seen, I have made free use of both ancient and modern commentators. When I have borrowed I have—in all cases, I hope—acknowledged the debt.

The apparent superfluity of illustrative matter will be forgiven if it be remembered that the book is not only submitted to the criticism of the scholar, but directed to the general reader, and even the practical farmer. For the sake of those who possess "small Latin and less Greek," I have translated passages of general interest from Cato, Columella, the Geoponica, etc.

In the Introduction and the first two Excursus I have treated at length of the *mise en scène* of the imaginary conversations in each of the three books, and of the date at which they are supposed by Varro to have taken place—matters which have been undeservedly neglected, and have important bearing on the text. In Excursus III certain conjectural emendations are proposed and discussed.

A plan is given of Varro's famous aviary, described by him in the third book. In 1794 the Prince de Ségur published one, together with a voluminous commentary on Varro, iii, 5, 9, but he introduced many violent and arbitrary alterations into the text, and his plan is demonstrably wrong in many important particulars.

My thanks are due and are gratefully paid to the Lord Abbot of Monte Cassino for his hospitality and gracious permission to use the magnificent library of the Badia; to the Signore Padre Benedetto del Greco for his kindness in showing me the

remains of Varro's villa and aviary at Cassino, and for his valuable explanations of many topographical difficulties; to the University Library of Aberdeen for allowing me the use of books which I could with difficulty or not at all procure elsewhere; and, finally, to Messrs. G. Bell and Sons for everything for which a generous and public-spirited publisher may be thanked.

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instructed him in grammar, archaeology, and theology, Aelius Stilo and Nigidius Figulus, became pigmies beside the vast bulk of him alive, and when he died his reputation grew greater from century to century and he was regarded "by the common consent of all the learned as the most learned of all men." In the dark ages his great figure is seen among the shadows, and at the dawn of the Renaissance Petrarch sings of him as the third great light of Rome, placing him between Cicero and Vergil:

Varrone il terzo gran lume Romano.

It is, indeed, hard to understand why so small a part of him should have escaped the Venus of Death, who has spared only one comparatively small treatise, produced when Varro was a very old man "packing up his luggage in readiness for a journey out of this life." One great work, perhaps his greatest, certainly that which the moderns would choose of all others to possess—the Antiquities Human and Divine, in forty-one books—survived for nearly 1,400 years, then vanished into a pawnbroker's shop, never to re-appear. Petrarch, in one of his "letters to the illustrious dead," which was addressed to Varro, says that he had once had these books in his possession, and that he was tortured with eternal longing and regret for their loss. He had lent them

to his old master, who under stress of poverty had pawned them, and died before they could be found and redeemed. They were never heard of again. And our text narrowly escaped a similar fate, for although in the sixteenth century there existed several MSS. and printed editions of the Rerum Rusticarum—so corrupt as to be frequently unintelligible—they all descended from a very ancient manuscript then lying in the library of St. Mark at Florence, which was lost in the seventeenth century. Fortunately Angelo Politian (1482) and Petrus Victorius (1541) had preserved the reading of the archetype, so that the great German scholar Keil has of late years been able to give us a respectable text—which, however, it seems possible to improve greatly by conjectural emendation.

As the Rerum Rusticarum is thus the sole treatise of the most industrious, the most learned, and, with two exceptions, the most famous of all Latin writers, which has come down to us practically entire, it is worth while, perhaps, to examine in detail the conditions of its production. In 46 B.C. Varro, who was then seventy years old, ceased from political activity and, after making his peace with Caesar, who treated him with great kindness and gave him congenial work to do, devoted himself entirely to literature. He lived for nearly twenty years after

this and published during that time one of his great theoretical works, the De Lingua Latina (probably in 45 B.C.), which was addressed to Cicero, and many smaller ones such as the Hebdomades (32 B.C.), the Disciplinae, De Vita Sua, De Vita Populi Romani, etc., which were practical in aim and intended to popularize science or to stimulate the patriotism of the rising generation. The treatise on farming (Rerum Rusticarum) was of the second kind. It is a practical handbook written especially for his wife Fundania, who had just bought a farm, and generally in the interest of posterity, with the hope, possibly, of persuading his fellow countrymen back to the "divine country," and to that life "which is not only the most ancient, but the best of all" (iii, 1, 4). But though the object may have been one with that of most of the great writers of the early Augustan age, there seems no evidence to support the frequent statement that Varro's work was written at the command of Octavius, nor does it seem at all likely that the latter in 36 B.C., when the Rerum Rusticarum was written (Euseb. Chron., Varro, R.R., i, 1, 1), should have yet thought much about regenerating by the arts of peace a country which he had first to win by arms.

The books on farming were composed when Varro was eighty years old and were written most likely

in the same place as his former works (Cic. Phil., ii, 40), at his villa at Casinum, in the "Museum" which he mentions in book iii, and close to the famous aviary which he there describes at length (iii, 5, 9, etc.). Remains of the villa are still to be seen extending along the bank of the Rapido for more than a quarter of a mile, and the inhabitants of Cassino point to a piece of gray and crumbling masonry which faces a little island in the Rapido as being *lo studio di Marco Varrone*. Here, too, he probably died, for according to Valerius Maximus (viii, 7), "the same couch witnessed at once the death of M. Varro and the conclusion of his noble works."

The work then was practical in its aim, but much care was taken in its literary presentation, for the time had long gone by when such an amorphous mass of often unrelated facts as Cato's treatise on the same subject could hope to be read. Varro, therefore, adopts the mode of the day made fashionable by Cicero in his rhetorical and philosophical writings, and develops the argument by means of imaginary conversations between real people, taking care, as Cicero did, to avoid anachronisms and improbabilities. The dialogue of each book is provided with an appropriate background, a separate introduction, a dedication, and its own little drama. The

time and place are chosen with care, and in most cases the names of the interlocutors are suggestive of the subject treated. As a work of art it is not, one must confess, entirely successful; the language is at times slovenly and slip-shod, now jolting along in short and jerky sentences, now trailing through cumbrous and often ungrammatical periods; the conversations degenerate into lectures, and we may look in vain for the graceful ease and urbanity of Cicero or the beautiful lucidity of Columella. Yet there is so much dry and sly humour, such sturdy patriotism, such vigorous sense and here and there such real poetry—in the ore at least (as for instance in the description of the life of the bees in book iii) —the little pictures of urban and rustic life are so vivid, that one feels that a better written book might perhaps be better spared. Varro's style has besides a certain flavour and raciness of its own which one learns to like, and the study of it, beginning with amazement, ends in a sort of love even for its roughness and difficulty, so different from the easy fluency of his great friend and rival.

As a work of science the Rerum Rusticarum is admittedly of distinguished merit. To its composition Varro brought great erudition, practical experience, and much knowledge of the subject gained at first hand from travel in many countries—and used

all three with restraint and judgement. But what is most striking is the perfection of the method adopted, which it would be difficult even now to surpass for precision and clearness of arrangement. The divisions which Varro made of his complex and unwieldy subject are natural, classifications are scientific, the plan of treatment is logical and consistent throughout. Whether the modern farmer may learn anything of profit from Varro's treatise or not is a question for the agricultural expert, but there can be no doubt that the methods slowly elaborated through many hundreds of years by the most practical of all peoples, and used with complete success until the time when Italian agriculture was ruined by foreign competition (amongst other causes), must be worth knowing. These methods Varro is at great pains to describe, so that we get from him a brilliantly clear picture of a Roman farm as it existed in the first century before Christ. And many are the interesting facts to be noted by the way—the use of *marne* as manure in Gaul and of vegetable charcoal instead of salt, the employment of *silos*, the imperfect domestication of geese other than white, the distribution in the wild state of bulls, horses, goats, sheep, and hens, the difference between the type of indigenous cattle found in Italy then and that which now exists there—all of which,

with many more, seem to deserve more attention from naturalists than they have yet received.

Incidentally, too, the enormous wealth and the incredible luxury of the few at Rome, the turbulence and corruption of elections, the frequency of assassination, the price of provisions, the market gardens, the average profits made by farms, the occasional employment of hired labourers in preference to slaves—all these and a host of other curious facts are vividly described or illustrated in these books on farming.

The first book, on agriculture proper, begins with a general introduction to the whole work, and a statement of the method which is to be used in the treatment of the subject. The treatise as a whole is dedicated to his wife Fundania. And here we may observe the elaborate care given to the *mise-en-scène* by Varro. As the first book is concerned with the cultivation of the land, the scene is laid in the Temple of Tellus (earth), and the time is the Sementivae (Festival of Sowing). The name Fundania suggests the *fundus*, or farm, as do those of the aeditumus Fundilius, and one of the interlocutors, Fundanius, Varro's father-in-law. Agrius and Agrasius—connected with *ager* (the land)—and Stolo (sucker), are names of other speakers.

The second book treats of cattle, horses, pigs,

sheep, etc.; it is accordingly dedicated to Turranius Niger—*turu* being Umbrian for *taurus*—and the speakers are Vaccius (*vacca*=cow), whose subject is cattle, Atticus who treats of sheep (the Attic sheep was a celebrated kind), while Scrofa (sow) discusses pigs. The place is possibly Epirus, where the best cattle were bred, and the time the Palilia, the great shepherd festival and the birthday of Rome, which was founded by shepherds.

The third book is concerned with what the Romans called *villatica pastio*, the feeding about the villa of such stock as fieldfares, blackbirds, hens, peacocks, guinea-fowls, hares, snails, dormice, fish, and bees; so it is dedicated to Quintus Pinnius (*pinna* =wing-feather), and Merula (blackbird) discourses on fieldfares and blackbirds, Appius (connected by Varro with *apis*) on bees. Other names occurring in the book are Fircellius Pavo (peacock), Minucius Pica (jay), and Petronius Passer (sparrow). One is tempted to believe also that the harsh style, as well as a rustic vocabulary—with words like *tabani* and diminutives such as *satulli*, etc., was deliberately assumed in order to be in keeping with the subject, and that Varro wished to represent in a realistic fashion the ordinary speech of the Roman gentleman-farmer. Unfortunately for this hypothesis we find the same crudeness, confusion, and

ugliness in everything of his which remains with perhaps the exception of such earlier works as the Menippeae. The truth is probably that Varro admired too greatly the "adorable rust" of antiquity, and ruined his style by pondering over and making excerpts from pre-Ennian writers who cared nothing for form in prose expression, and that while many current country words and homely proverbs are preserved in the Rerum Rusticarum, its stiffness and dryness are transmitted through Varro from a time when no prose literature in Latin existed. This harshness of style is frequently noticed by the ancients. Quintilian mentions it, and Augustine (De Civ. Dei, vi, 2) writes about Varro, "although he has no sweetness of utterance, he is yet so full of learning and of wise precepts that in the whole field of knowledge which we call secular, and pagans liberal, he is as full of information for the student of facts as Cicero is of charm for the lover of style." There is little doubt that the difficulty of reading Varro's work—St. Augustine (xix, 1) is obliged frequently to paraphrase—goes far to explain why so little of it remains to us, as people naturally preferred the writings of those who, using his facts, presented them more gracefully, and we need not have recourse to the story, probably invented by Machiavelli or Cardan, that Gregory the

Great caused Varro's writings to be burnt in order to conceal Augustine's plagiarisms from them!

It is clear from Cicero's letters (Ad Att., iv, 16, etc.) that in those of his treatises which are cast in the form of dialogues he was careful to avoid anachronisms and the introduction of anything which might shock the reader by its inherent improbability. Those who take part in the dialogue are real people, not unknown to the public, and speak each in accordance with his known character. We find no fictitious personages, and no violation of history. We may be quite sure that the more accurate and less imaginative Varro has been equally careful, and that in the Rerum Rusticarum we are introduced to a circle of people, all of whom once lived, and were his acquaintances or friends, and that they are portrayed in their real characters. Many of them, indeed, Cicero's letters have made familiar to us; Atticus, for instance, and Agrius, Appius, C. Fundanius, Cossinius, Axius—and often they form an illuminating commentary on Varro's text. As examples: Axius the senator is humorously represented by Varro as a man whose whole heart is set on gain: in Cicero he appears as an avaricious moneylender; in book ii, 2, 11, Varro writes of Atticus, "who was then (58 B.C.) Pomponius, and now (36 B.C.) is called Q. Caecilius":

there is extant a letter (Ad Att., iii, 20) of Cicero's congratulating Atticus on his adoption and inheritance; in book iii, 2, 3, Appius reminds Axius that a few days before he had stayed at Axius's house in Reate, and that his visit was connected with a dispute between the Interamnates and Reatini: Cicero (Ad Att. iv, 15), who tells the whole story at length, was counsel for the Reatini, and stayed with Axius (*vixi cum Axio*), so that on this occasion Cicero and Axius were guests at the same house. This letter incidentally fixes the date assigned to the imaginary conversations of this book, and of the election of aediles described in it, which must have taken place in July 54 B.C. Varro and Axius (iii, 2, 1) are represented as taking shelter from the blazing sun in the Villa Publica during this election: Cicero (Ad Q. F., iii, 1) says that he does not remember ever to have known a hotter summer than this of 54. A little further on in the book Varro tells a 'fish-story' about Ummidius and Philippus which vividly illustrates the character of Philippus as described by Cicero, and of Ummidius, the miser mentioned by Horace. The latter or his children Varro probably knew personally, for Ummidius lived at Casinum, where stood Varro's villa, and it was an Ummidia who built the theatre, still standing, for the Casinates, as is proved by an in-

scription now preserved in the Badia of Monte Cassino.

These examples illustrate the meticulous accuracy shown by Varro in arranging the background for these dialogues. He probably fixed upon some one year for the conversation of each book, and then consulted his notes for the events and people of that year, choosing of the latter those whose circumstances and names associated them with agriculture—for there were few things which Varro liked better than a pun. One need not wonder at his success in finding characters whose names came so pat to his purpose, for a large proportion of Roman names are connected with the animals and plants found on a farm.

The place and occasion of the conversations in the first book is, as I have said, made clear by Varro, but there is no internal evidence to fix the year. From the allusion, however, to Corcyra, and the fleet being there, if the reference is, as most commentators suppose, to the great civil war of 49-48, we may conclude that it was after this date. I am inclined to think, however, that the time referred to is when Varro served under Pompey in the war against the pirates. In book ii the time of the conversation is precisely fixed, for Varro says that they took place when he was in command of

the fleets between Delos and Sicily during the wars of the pirates (67-66 B.C.). That the supposed occasion was the Parilia (20th April) I hope I have established conclusively in the note to ch. viii, § 1. But the place is not certain. In the note to 5, 1, I suggested Sicily and proposed "Palicis," as an alternative to Keil's emendation "Laribus," for the "Palibus," of the archetype (*dum asses solvo Palibus*[1] *si postea a me repetant ut testimonium perhibere possis*). I now think that it was somewhere in Epirus, for Varro (Introduction, § 6) says that he is giving the substance of conversations which he had had with people who possessed large cattle farms *in Epiro*, and Epirus was celebrated for its cattle.

The conversations of the third book took place, as is said above, at the Villa Publica in the Campus during the election of aediles in 54 B.C.

The sources consulted by Varro are many. In the introduction to book i he recommends to his wife as a reference library the works of fifty Greek authors! The authorities mostly used by him for

[1] For the impossible "Palibus" of the archetype I would suggest *Pali bis*, with *repetat* instead of *repetant*, when the translation would run "Come along, Murrius, and support me with your presence while I pay my pence to Pales, so that if she (or he) tries to make me pay them twice over (*bis*) you can give evidence."

book i are Cato, the Sasernae and Theophrastus, for book ii Xenophon, Aristotle, Mago, and his own contemporary Tremellius Scrofa; and for book iii Aristotle. Varro's own treatise soon afterwards became the standard authority on the subject, and is the chief source used by the later writers on agriculture—Vergil, Columella, Pliny, Palladius—while much of it is paraphrased or translated by the compiler of the Geoponica, and by Petrus Crescentius as late as the thirteenth century.

MARCUS TERENTIUS VARRO ON FARMING

BOOK I

AGRICULTURE

CHAPTER I

INTRODUCTORY

1 My dear Fundania,[1] if I had leisure I would give a better form to this treatise. As I have not, I will do what a man may who has to bear in mind the need of haste. Man is a bubble, they say; in which case the proverb must be the more true of an old man. And I am in my eightieth year, which warns me to pack up my baggage in readiness to journey out of this world.

2 Well, as you have bought an estate, and want to farm it to advantage, and as you ask me to give the matter my attention, I will try what I can do,

[1] *Fundania*, Varro's wife. She is mentioned again in the preface to the second book, § 6. Her father, C. Fundanius, one of the interlocutors in this book—like Varro, of plebeian family—was a tribune of the people and *curator viarum* in 72 B.C. Possibly Cicero's friend, mentioned in his letter to his brother (Ad Q. Cic., i, 3, 10), is this same Fundanius.

in the hope that my instructions may serve you not only during my life, but after my death as well.
3 The Sibyl's oracles helped not only her contemporaries, but also generations of men to whom she had never even given a thought; her books, after so many centuries, are still consulted officially, when some portent occurs and we need to know the proper way to deal with it—so it shall not be said that I, even during my lifetime, could do nothing to help those near and dear to me.

4 I am, accordingly, about to write three books for your guidance, to which you can refer whenever, in any particular case, you need a detailed knowledge of the practice of farming. And since the gods, they say, help those who pay them due observance, I will begin by invoking not the Muses, as Ennius and Homer did, but the twelve great gods who form the Senate of Heaven. I do not mean those fine city gods, six of either sex, whose statues stand in the Forum,[1] all dressed in gold, but those twelve deities who are the special guides of the farmer.

5 First in order, then, I call upon Jupiter and Tellus, who by means of the sky and land maintain the various fruits of farming, and this is the reason

[1] *Deos Consentis.* Their names are given in two well-known hexameters of Ennius, "Juno, Vesta, Minerva, Ceres, Deiana, Venus, Mars, Mercurius, Jovi', Neptunus, Volcanus, Apollo." The court in which their statues stood, in the north-west corner of the Forum, at the foot of the Capitoline Hill, was discovered in 1834. In A.D. 367 Agorius Praetextatus, prefect of Rome, restored these *sacro-sancta simulacra* to their ancient state, as the inscription, still to be read there, declares.

why—as they are said to be the universal parents—Jupiter is addressed as "Father Jove," and Tellus as "Mother Earth." Next the Sun and Moon, whose seasons are observed for the sowing and garnering of the crops. Thirdly Ceres and Liber, as the fruits they send are specially necessary for subsistence: for it is through them that food and
6 drink come from the farm. Fourthly Robigus[1] and Flora, for by their grace blight does not ruin the various grains and trees, and these flourish in due season. For which cause the State appointed the festival of the Robigalia,[2] in honour of Robigus, and for Flora the games known as Floralia.[3] And likewise I pay my respects to Minerva and Venus, the one of whom watches over the olive orchards, the other over gardens. It is in honour of the latter that the festival of the "Country Vinalia"[4] was instituted. And finally I pray to Lympha and Good Speed,[5] since without water all husbandry is dry

[1] *Robigus*, the god, and *Robigo* the goddess, of blight or mildew (*robigo*). "They were implored not to come near" the crops. Cf. Aug., C. D., iv, 21.

[2] *Robigalia.* "A festival called after Robigus. Sacrifice is made to this god near the corn-fields that mildew may not attack the crops" (Varro, L. L., vi, 16). Its date was 25th April, "just before the ear leaves its sheath (Pliny, N. H., xviii, 14). Red puppies were sacrificed.

[3] *Floralia.* 28th April to 2nd May.

[4] *Rustica vinalia.* 19th August. "Then Venus's temple was dedicated—and on that day gardens are placed under the protection of this goddess, and market-gardeners make holiday" (Varro, L. L., *loc. cit.*).

[5] *Bonus Eventus.* According to Pliny (N. H., xxxiv, 8) there

and stingy work, and without good luck and good speed it is a delusion and a snare.

7 And now that I have invoked all these deities, I will reproduce those conversations in which I and others lately discussed the practice of farming. You will find in them the practical information you need; but lest you should in the future require guidance upon matters not contained in them, I will mention those authors, Greek as well as Latin, from whom you may get it.

8 Of those who have written monographs in Greek on different branches of the subject there are more than fifty. These you will be able to summon whenever you want a consultation on any point: Hiero of Sicily and Attalus Philometer; amongst the philosophers, Democritus, the natural philosopher, and Xenophon, Socrates' disciple; of the Peripatetics, Aristotle and Theophrastus; Archytas the Pythagorean, and also Amphilochus of Athens, Anaxipolis of Thasos, Apollodorus of Lemnos, Aristophanes of Mallus, Antigonus of Cumae, Agathocles of Chios, Apollonius of Pergamus, Aristandrus the Athenian, Bacchius of Miletus, Bion of Solos, Chaeresteus and Chaereas of Athens, Diodorus of Priene, Dion of Colophon, Diophanes of Nicaea, Epigenes of Rhodes, Euagon of Thasos, the two Euphronii—the one of Athens, the other of Amphipolis—Hegesias of Maronea, the two Menanders—one from Priene, the other

was a statue of this god in Rome, in the right hand of which was a *patera*, while the left held an ear of corn and a poppy.

from Heraclea, Nicesius of Maronea, and Pythion of Rhodes.

9 Amongst the others, whose place of birth is unknown to me, are Androtion, Aeschrion, Aristomenes, Athenagoras, Crates, Dadis, Dionysios, Euphiton, Euphorion, Eubulus, Lysimachus, Mnaseas, Menestratus, Plentiphanes, Persis, Theophilus. All the above-mentioned wrote in prose. Some have treated the same subject in verse, as for example Hesiod of Ascra, and Menecrates of Ephesus.

10 More famous than all these writers is Mago the Carthaginian, who, writing in Punic, embodied in twenty-eight books matter that was previously scattered here and there in different monographs. Of these twenty-eight books, Cassius Dionysius of Utica made a Greek translation in twenty books which he dedicated to Sextilius the praetor, and in these twenty volumes he introduced much matter taken from the Greek writings of those whom I have mentioned above, shortening at the same time Mago's work by eight books. Of these twenty books a useful abridgement to six books was made by Diogenes in Bithynia, and presented by him to
11 King Deiotarus. I mean to be briefer still than he, treating the same subject in three books—the first on agriculture proper, the second on cattle, and the third on the fattening of farmyard stock, for I shall eliminate from this treatise such matters as I think do not come within the province of farming. And so I shall begin by showing what ought to be eliminated, and then proceed with the subject, following

its natural divisions. My observations will be drawn from a threefold source; from personal experience on my own farms, from my own reading, and from what I have heard from experts.

CHAPTER II

THE AIM AND SCOPE OF AGRICULTURE

1 At the Sementivae (Festival of Sowing)[1] I was in the temple of Tellus, on the invitation of the Aeditumus (guardian of the temple), as our ancestors taught us to call him, though now our modern men-about-town correct us, and would have us say *Aedituus*.[2] There I fell in with Caius Fundanius, my father-in-law, C. Agrius, a Roman eques of the Socratic school, and P. Agrasius the tax-farmer. They were looking at a map of Italy traced on the wall. What are you doing here? I said to them, surely the "Sementivae" haven't brought you gentlemen of leisure here as they used to do our fathers and grandfathers!

[1] *Sementivae feriae.* A village festival which took place after the seed had been sown. Its date was announced by the Pontifices. Sacrifice was made to Ceres and Tellus, and prayers were offered for a good harvest (cf. Ovid, Fasti, i, 658).

[2] *Aeditumus*, the correct form, for which compare *finitimus*, *legitimus*, etc. The form *Aedituus* rests on a false derivation from *aedes* and *tueri*.

2 Our presence has, I imagine, the same cause as yours, said Agrius, an invitation from the Aeditumus, and if I am right—as your nod would indicate—you must wait with us until he returns, for the aedile who has charge of this temple sent for him and he hasn't yet come back, but he left a request that we should wait for him. So, in the meantime, while he is on the way, suppose we apply the ancient proverb—"The Roman wins by sitting still."[1]

A good idea, said Agrius, and thinking that the longest part of a journey is, according to the proverb, the getting to the gate, at once moved forward to the benches; and we followed.

3 When we were seated Agrasius said: You men who have travelled over many lands, have you ever seen any which was better cultivated than Italy? My opinion is, said Agrius, that there is none that has so little of its land uncultivated. In the first place, as Eratosthenes[2] divided the earth into

[1] *Romanus sedendo vincit.* A saying, no doubt of Fabius Cunctator. Cf. his advice to Paullus (Livy, xxii, 39): *Dubitas ergo quin sedendo superaturi simus?* His colleague, Minucius, was of the opposite opinion (cf. Livy, xxii, 14): *Stultitia est, sedendo aut votis debellari credere posse. . . . Audendo atque agendo res Romana crevit.*

[2] *Eratosthenes*, the founder of scientific geography, born about 275 B.C., died 195 B.C., who was made keeper of the great library at Alexandria in 247 B.C. by Ptolemy III. Of his genuine writings only a few fragments remain. In one of them, the "Hermes," in which the celebrated description of the Five Zones, imitated by Vergil (Georgics, i, 233) occurs,

two halves, the northern and the southern (the most
4 natural division); and since the northern part is incontestably healthier than the southern, and the healthier a place is the more productive it is, we must conclude that Italy, being in the northern half, was originally more suitable for cultivation than Asia. For in the first place Italy is in Europe; secondly, this part of Europe is more temperate than the inner part, where almost perpetual winters reign. And no wonder, since there are districts between the Arctic Circle and the North Pole—the axis of the heavens—where the sun is invisible for six months together. They say, too, that in consequence of this, sailing even is impossible in the Ocean, owing to the sea being frozen.

5 I say, said Fundanius, you don't suppose, do you, that anything can grow there, or be cultivated if it does? For Pacuvius's saying is true, "If there be perpetual sunlight or night, all the

there are these lines (v. 18), which Varro may have had in mind:

> *αὐτὴν μὲν μιν ἔτετμε μεσήρεα παντὸς Ὀλύμπου*
> *κέντρον ἐπὶ σφαίρης διὰ δ' ἄξονος ἠρήρειστο.*

But the division of the earth into two parts, Asia and Europe, Africa being considered as a part of Europe, was adopted by many of the ancients. Lucan, in speaking of Africa (Pharsalia, Bk. ix), says: *Si ventos caelumque sequaris || parscrit Europae.* Cf. also "Æthici Cosmographia," p. 1, and Varro himself (L. L., v, cap. 4): *Ut omnis natura in caelum et terram divisa est, sic caeli regionibus terra in Asiam et Europam. Asia enim iacet ad meridiem et Austrum, Europa ad Septemtriones et aquilonem.*

fruits of the earth perish through fiery glow" or cold! For myself, even in this part of the world where night and day follow each other at reasonable intervals, life would be impossible, did I not
6 in summer time break the day by a siesta. How then could sowing, growing, or mowing be possible in that part of the world where there is a six-months night or day?

Contrast with this Italy, where every useful product not merely grows, but grows to perfection. What spelt is comparable with that of Campania, what wheat with the Apulian, what wine with the Falernian, what oil with the Venafrian? Is not Italy so stocked with fruit-trees as to seem one great
7 orchard? Is Phrygia, which Homer calls ἀμπελόεσσαν, more thickly covered with vines than our country? Or is Argos more fruitful, which the same poet calls πολύπυρον? In what other land does the *iugerum*[1] produce fifteen *cullei*[2] of wine, which is the case in some districts of Italy? Does not M. Cato write in his book "Of Origins" as follows: "That part of the Ager Gallicus[3] is called Roman which, lying

[1] *2 actus quadrati* = 28,800 Roman square feet = 28,000 English square feet (approximately), *i.e.*, nearly $\frac{2}{3}$ acre.

[2] A *culleus* = 20 *amphorae*. The *amphora*, as a measure of capacity = 6 gallons, 7 pints. The yield of 15 *cullei* to the *iugerum* amounts to about 3,000 gallons (18,000 bottles) to the acre.

[3] *Ager Gallicus*. A strip of coast between the river Axis—the ancient northern frontier of Italy—and the Rubicon, the later northern frontier. It was possessed successively by Umbrians, Gauls, and Senones, until in 285 B.C. it was con-

beyond the Picentine country on this side of Ariminum, was portioned out to settlers. In that land occasionally ten *cullei* of wine are made to the *iugerum*." And the same remarkable yield is observed in the country about Faventia, for there the vines are called *trecenariae*, on the ground that the *iugerum* is reported to yield 300 *amphorae*.[1] At this point, with a glance at me, he said, At any rate, your head engineer, Libo Marcius, used to assert that the vines on his farm at Faenza produced this quantity.

8 Two points above all others the inhabitants of Italy seem to have considered in farming: Could they get back a return proportionate to the labour and expense? And was the situation healthy? If either question has to be answered in the negative, and a man still wishes to farm, he is mentally defective, and had better be put in charge of his legal guardians.[2] For no sane man should be willing to

quered by Curius Dentatus. In 283 B.C. the Roman colony of Sena Gallica was founded, and in 268 the Latin colony of Ariminum. The *Ager Gallicus* remained *ager publicus* until 232, when, on the passing of the Lex Flaminia, proposed by G. Flaminius in order to relieve over-crowding and distress at Rome, it was portioned out to Roman colonists.

[1] See note 2, p. 9.

[2] *Ad agnatos et gentiles*. *Gentiles* were members of the same *gens* who bore the same *nomen* and were supposed to be descended from a common ancestor. *Agnati* were *gentiles* on the male side who could prove their relationship. When a man died without heirs of his body, his property devolved on the *agnati*; failing these the *gentiles* divided it.

If a man were mad, the *agnati*, or, failing them, the

go to the trouble and expense of farming if he sees that no return is possible, or that, while he may get a return in crops, they will be destroyed by disease.

9 But here we have men better qualified than I am to deal with these matters; for I see coming C. Licinius Stolo and Cn. Tremelius Scrofa. It was Stolo's ancestors who proposed the law limiting the land held by one person (for a Stolo originated the well-known law which forbids a Roman citizen to hold more than 500 *iugera*), and Stolo himself through admirable farming made good his right to the Cognomen Stolo, for not a single "sucker" could be found on his estate since he went round his trees digging up such offshoots from the root as sprouted above the soil—and these were called "stolos." C. Licinius[1] of the same *gens*, when he was Tribune

gentiles, took charge of him and his property. Cf. the laws of twelve tables (Cic. De Invent., ii, 148): *Si furiosus escit, ast ei custos nec escit, adgnatum gentiliumque in eo pecuniaque eius potestas esto.* Persistent senseless extravagance was treated as madness (cf. Ulpian, Reg., 12, 2).

[1] *Caius Licinius Crassus* was a Tribune of the Plebs in 145 B.C., and, according to Cicero (De Amicitia, xxv), he, when addressing the people from the Rostra in support of a popular measure, was the first to adopt the custom of speaking with his face turned towards the Forum, not towards the Comitium—by this implying the sovereignty of the people, and denying that of the patricians. The Comitium was an enclosure (unroofed) extending in a north-easterly direction from the ancient Rostra. To face the Forum the orator would have to turn right round, looking south. On its northern side was the Curia Hostilia, the ancient senate house. In the

of the Plebs, 365 years after the expulsion of the kings, was the first to lead the people, to hear the laws announced, from the Comitium to the Forum, their seven *iugera* of land.[1]

10 The other whom I see approaching is a colleague of yours, one of the twenty commissioners appointed to apportion the Campanian lands, Cn. Tremelius Scrofa. Universally accomplished, he is also considered the greatest Roman authority on farming. And is he not rightly so considered? said I; for his farms, owing to their fine cultivation, are a pleasanter sight to many than the palatial buildings of others, since people come in his case to see farmhouses, not picture-galleries as at Lu-

Comitium the ancient *comitia* had been held, and in the time of the kings and during the early republic it was the centre of government and the stronghold of the patricians. The Rostra, a raised semicircular stone platform on the confines of the Comitium and the Forum—so situated that a speaker could be heard both by patricians and plebeians.

[1] *In septem iugera forensia.* According to Pliny (N. H., xviii, 3), *haec mensura* [*i.e.*, seven *iugera*] *plebei post exactos reges assignata est.* Columella also speaks of *post reges exactos Liciniana illa septena iugera quae plebi tribunus viritim diviserat.* Romulus had assigned two *iugera* to each man.

Varro here speaks of the *populus* as one person, and the Forum Romanum as its allotment of seven *iugera*.

The meaning, then, of this difficult passage would seem to be that C. Licinius Crassus when proposing a democratic measure (that election to the priestly colleges should be by the people, not co-optative) addressed himself to the people in the Forum. Those who were then in the Comitium naturally quitted it for the Forum in order to hear him.

cullus's, but store-houses stocked with fruit. There is a picture of our friend's orchard, said I, at the top of the Sacra Via,[1] where fruit is being sold for gold.

1 Meanwhile, the two of whom I was speaking join us. We have not come too late for the dinner, have we? said Stolo, for I don't see L. Fundilius, who invited us to it. Don't be uneasy, said Agrius, for the egg[2] which marks the last course in the four-horse chariot-races at the games of the Circus has not yet been removed; we have not even seen the egg which usually begins
2 the solemn function of dinner.[3] And so, until we can see the latter together, and while the Aeditumus is on his way, tell us what is the chief end of farming—utility, or pleasure, or both; for they tell me

[1] *Summa Sacra Via.* The end of the first stage of the Sacra Via, which went from the Sacellum Streniae (where the Colosseum now stands) to the Velia. There, where is now the Arch of Titus, it was called Summa Sacra Via. From here the Sacra Via proceeded by the Arch of Fabius, the temple of Castor, and the Basilica Iulia to the Capitol.

[2] *Ovum illud.* An allusion to the egg-shaped objects (usually seven) on the *spina* (a low wall which passed down the middle of the course) of the circus which served to indicate to the spectators how many heats remained to be run. As each heat was concluded one of these "eggs" was removed.

[3] *Cenali pompa.* A Roman dinner usually began with eggs, salad, etc. Compare Horace's phrase *ab ovo usque ad mala* "from *hors d'œuvres* to dessert." Martial (Epig., x, 31, 4) calls a mullet *cenae pompa*:

> *Nec bene cenasti: mullus tibi quattuor emptus*
> *Librarum cenae pompa caputque fuit.*

that you are now the great agricultural[1] expert, as was Stolo before you.

We must first decide, said Scrofa, whether farming is concerned only with the sowing of land, or with such things also as are brought on to the
13 land, such as sheep and cattle; for I find that those who have written on agriculture in Phoenician, Greek and Latin, have travelled too far afield.

It is my opinion, answered Stolo, that we are not bound to imitate them in every particular, and that certain writers have done better who have kept within a narrower boundary and excluded from it everything irrelevant to the subject. Thus the feeding of stock in general, which most people make a branch of farming, seems more the province
14 of the shepherd than of the farmer; and so the headmen in each case are distinguished by different names, the one being called the bailiff (*vilicus*), the other the flock-master. The *vilicus* was appointed to cultivate the ground and was named after the villa, as he conveys the produce into the farmhouse, and out of it when it is being sold. Hence the country-folk even to-day say *vea* for *via* (road)[2]

[1] *Ad te enim rudem esse. Rudis* was the wooden foil given to a distinguished gladiator in token of his discharge. Such a gladiator frequently became a *lanista* (fencing-master). *Ad te* is perhaps an archaism for *apud te*, of which I can find no example. The quotation given by Victorius from Cicero, *quod ad fratrem promiserat*, has, of course, no bearing on the question.

[2] *Vea.* The use of *e* for *i* (in hiatus) in rustic Latin was common. *Vea* is found for *via* in Umbrian. Cf. Lindsay, "The Latin Language," p. 22.

owing to the conveyance (*vectura*) over it, and *vella*, not *villa*, for the place to and from which produce is conveyed (*vehit*). Carriers likewise are said to follow the trade of conveying (*velatura*).

15 Certainly, said Fundanius, the feeding of stock is one thing, tilling the land is another, yet they are related, just as the right-hand flute, though different from the left-hand one, is yet in a sense united to it since the song is the same, of which the one leads and the other accompanies the tune.

16 Yes, and you may add, said I, that the shepherd's life is the leading part, the farmer's takes the second—on the authority of the learned Dicaearchus,[1] who, in the picture he has drawn for us of primitive Greek life, shows that in former ages there was a time when men led a pastoral life, with no knowledge of ploughing, sowing, or pruning, and that they took up agriculture a degree later in point of time. Agriculture, therefore, plays second to the pastoral life, in that it is lower, like a left-hand flute in relation to the stops of the right-hand one.

17 Then said Agrius, You and your piping not only rob the farmer of his flock, but the slave, too, of his *peculium*—the ox which his master allows him to graze, and you do away with the laws for settlers, in which it is written: On land planted with young trees let not the settler pasture the off-

[1] *Dicaearchus.* A Greek philosopher, disciple of Aristotle. His most important work was that referred to here, the Life of Hellas.

spring of the she-goat—creatures which even astronomy has removed to a place in the sky not far from the bull.

18 I am afraid, Agrius, said Fundanius to him, that what you quote is wide of the mark, for in the laws it is also written "certain cattle," and the reason of this is that certain animals, such as the she-goats you mention, are hostile to cultivation and poisonous to plants, for by nibbling at them they ruin all young plants, and not the least, vines
19 and olive trees. And so on this ground, though from different motives, it was ordained that a victim of the goat kind should be led to the altar of one god, but that at another's no such sacrifice should be performed. The loathing in each case was the same —the one god wishing to see the goat dying, the other not wanting to see him at all. Hence to Father Liber—discoverer of the vine—he-goats were sacrificed to the end that they might suffer death for their misdeeds, but to Minerva they sacrificed nothing of the goat kind because of the olive tree, which is said to become barren if bruised by it, for
20 the goat's saliva is poisonous to vegetation. At Athens, too, we are told that on this account goats are not allowed to enter the Acropolis, save once a year for the necessary sacrifice,[1] lest the olive tree, which they say first sprang up there, be touched by a she-goat.

No animals, said I, come within the pro-

[1] *Necessarium sacrificium.* Probably the yearly sacrifice of 300 goats to Artemis in fulfilment of the vow of Miltiades.

vince of agriculture save those which can help the soil to greater fertility by their labour, as for example those which yoked together can plough
1 the land. If what you say is true, said Agrasius, how are you to disconnect cattle from the land, seeing that dung, which is of the greatest use to it, is furnished by herds of cattle? Then, replied Agrius, we must say that a troop of slaves belongs to agriculture, if we decide to keep one for that purpose. No, the mistake arises from the fact that cattle may be on the land and be productive of revenue on that land; but you must not make this fact an argument [for connecting them with agriculture]; for if you do, other things as well which have nothing to do with land will have to be admitted—as when a farmer has several weavers on a farm with buildings set apart for weaving, and so on for other craftsmen.

2 Well, said Scrofa, let us separate stock-raising from farming, and all the other things to which objection may be taken on this ground. Or, said I, am I to follow the books of the Sasernae, father and son, in thinking that the proper working of potteries has more to do with agriculture than the working of silver and other mines which are doubtless to be met with on some land? Pot-
3 teries however have nothing to do with farming, any more than stone or sand quarries, though we need not on that account neglect to work them and reap profit from them on land where they can be conveniently worked. Just as, to take another

instance, if a piece of land borders on a highway, and the spot suits travellers, it is advisable to build inns, though they, however profitable, do not any the more belong to agriculture. For all produce that an owner gets directly or indirectly from his land, ought not to be credited to agriculture, but only such things as have grown from the ground for human consumption after having been sown.

24 Then Stolo took him up, saying: You are jealous of the illustrious author, and your criticism of his potteries is mere carping, while you say nothing about many excellent passages, for fear of having to praise them, though they are closely con-
25 nected with agriculture. Scrofa smiled, for he knew the books and thought little of them. Agrasius, thinking himself to be the only one who knew them, asked Scrofa to mention the passages. So Scrofa began, It describes in these words how bugs should be destroyed: "Put a wild cucumber in water, pour the water where you want the result, no bugs will come near. Or, take ox-gall mixed
26 with vinegar; smear your bed with it." Fundanius looked towards Scrofa and said: And yet he speaks the truth, though the statement does occur in a treatise on agriculture. It is as true, I warrant, said Scrofa, as his recipe for a depilatory —he bids you throw a yellow frog into water, which you are to boil until two-thirds are gone, and to anoint your body with what remains. You had better quote, said I, from that book what more nearly concerns Fundanius's health, for our

friend's feet often ache, and pucker his forehead
27 with frowns. Please do, said Fundanius, for I had rather hear about my feet than about the proper way of sowing beetroot.[1]

I will quote, said Stolo with a smile, the very words he wrote: "Thus have I heard Tarquenna say,[2] that when a man's feet began to ache, by remembering you he could be cured. I remember you, cure my feet. 'O Earth, keep thou the pain, and health with me remain in my feet.'" He bids one sing this thrice nine times, touch the earth,
28 spit downwards, and sing it fasting. Said I, You will find many other marvels in the book of the Sasernae, all of which have nothing to do with

[1] *Pedibus meis . . . pedes betaceos.* A pun quite in Varro's manner. Cf. iii, 17, 4: *Hos pisces nemo in ius vocare audet, ius* having the double meaning of (1) sauce, (2) trial.

[2] *Vel Tarquennam audivi,* etc. Victorius supposes Tarquenna to have been the name of an *anagnostes,* a slave whose office it was to read aloud. In this case the translation would run, "or as I have heard T. read . . ."

But "Tarquenna" ("Tarchna" in Etruscan)—the name of the mythical founder of Tarquinii, the ecclesiastical metropolis of Etruria—is a name not likely to have been borne by a slave. The whole passage from *vel* (or better *velut,* the contraction for both words being the same in Minuscule MSS.) to *maneto* seems to be in rough Saturnian verse. It may be that the incantation begins with *velut Tarquenna,* and that it may have been addressed to the mythical hero Tarquenna. We should then have to read "Tarquenna," not "Tarquennam" (which in MSS. would be Tarquennā). The translation would then be: "As I heard, O Tarquenna, that when a mortal's feet began to ache by thinking of you he could be cured, I think now of you, cure my feet," etc.

farming, and are for that reason to be rejected. As though, said he, you couldn't find in other writers, too, examples of the same kind. Why, in the book which the great Cato published on agriculture, are there not scores, for example: how to make a *placenta*, or a *libum*, or how to salt hams? You don't give, said Agrius, the remarkable prescription, "If you should wish to drink deep and eat freely at a dinner-party, you ought beforehand to have eaten raw cabbage in vinegar, some five leaves"!

CHAPTER III

AGRICULTURE AN ART

WELL, said Agrasius, seeing that we decided what kind of things were to be kept apart from agriculture, will you gentlemen tell us whether the knowledge employed in farming is an art or otherwise, and what is its starting-point, what its goal?

Said Stolo, after looking at Scrofa, It is for you to tell us, as you are our superior in age, in rank, and in knowledge of the subject. He, nothing loth, began:

In the first place, it is not only an art, but an art as important as it is necessary; it teaches us what crops are to be sown and what methods adopted on each and every soil, and what kind of land yields continuously the greatest increase.

CHAPTER IV

THE FOUR DEPARTMENTS

1 Its elements are those of which, according to Ennius, the universe is composed: water, earth, air, and sun. For before sowing one's seed one must have gained understanding of these things, being, as they are, the source of all production. The farmer must start from this point and direct his course towards two goals—utility and pleasure. Utility seeks profit, pleasure what is agreeable. What is useful plays a more important part than what is 2 agreeable. And indeed it is also true that the efforts which by culture make land more beautiful not only increase as a rule the return from it—as for example when vineyards and oliveyards are planted in regular order—but also render it more saleable and add to the value of the farm. For every one prefers to buy, and will give more for, a thing which with the same advantages is more beautiful, than for a farm 3 which, though profitable, is ugly.[1] Now, that land is the most useful which is the most healthy, because the return from it is assured; and because, on the other hand, on a malarious soil however fertile it be, sickness and death prevent the settler

[1] *Nemo enim*, etc. The translation here reproduces the confusion of thought in the original; with *fructuosus*, *fundus* or *ager* must be supplied.

from reaping the fruits of his labour. For in fact, when you have to reckon perpetually with Orcus (Pluto), it is not the profits from the land only which are uncertain, but the life of those who farm it. So in unhealthy conditions agriculture is mere gambling with the farmer's life and property.
4 Yet this risk can be lessened by knowledge. For though healthy conditions, depending as they do upon soil and climate, are not in our power but in Nature's, yet by care we can do much to mitigate the graver evils. For in fact, suppose that owing to soil or water a farm is made unwholesome by a stench which exhales from it, or if owing to its aspect the land should be too hot, or a bad wind should blow, these evils are generally remedied by the knowledge and efforts of the owner; for the situation of the farm-buildings, their size, and the aspect of the colonnades, doors, and windows, are
5 of very great importance. Did not the great physician Hippocrates at the time of a severe pestilence save by his knowledge, not a single field, but many towns? But why need I call Hippocrates to witness? Did not our friend Varro here, at a time when the army and fleet were at Corcyra, and every house was full of sickness and death, let in the north wind by making new windows, shut off malarious winds, change the house-door, and by other precautions of the same kind bring back his comrades and household safe and sound?

CHAPTER V

BRANCHES OF THE SCIENCE OF AGRICULTURE

1 But now that I have stated the principles and end of agriculture, it remains for us to determine the number of departments into which its practice should be divided.

Why, to me they seem countless, said Agrius, when I read the numerous books of Theophrastus, which are called φυτῶν ἱστορίας (researches on plants) and the second series entitled φυτικῶν αἰτίων (of the
2 causes of plant-life). The books you mention, said Stolo, though I do not mean to imply that they contain nothing that is of practical use or general interest, are better suited to the would-be
3 philosopher than to the practical farmer. So without troubling Theophrastus we ask you to describe the departments of agriculture.

There are, said Scrofa, four main branches of the science of agriculture; they consist in the knowledge (1) of the farm, the nature of the soil and its constituents; (2) of the things which are needed on that farm, and should be there for the purpose of its cultivation; (3) of what must be done in the process of its cultivation, and (4) of the times of the year which are suitable for the various opera-
4 tions on it. Of these four principal divisions each is subdivided into at least two others. The first prin-

cipal division comprises three things which have to do with (1) the soil itself, and (2) the farm-buildings and out-houses; the second division, comprising things of a movable nature which are necessary for the purposes of cultivation, is likewise twofold, being concerned with (1) human and (2) other instruments of cultivation; the third is divided into two parts, one of which treats of the necessary operations in detail, and the second the choice of places where these are to be performed. The fourth main division relates to the seasons (1) as connected with the sun's yearly orbit, and (2) as related to the monthly course of the moon. I shall first mention the four principal divisions, and afterwards the eight subdivisions in greater detail.

CHAPTER VI

THE SOIL

1 FIRSTLY then, in relation to the soil of the farm, we have to consider these four points: its configuration, the kind of land, its extent, and how it may be properly fenced.

As to configuration, there are two kinds, the one the gift of nature, the other induced by human cultivation—for example, in the former case a farm may be (1) naturally bad or good, and (2) in the latter, well-planted or otherwise. Of the two I will

first discuss the natural configuration of the farm.
2 Now there are three kinds of land which are simple in character—the flat, the hilly, the mountainous, and, springing from these three, a fourth—the mixed—as in the case of a farm where two or three of these kinds co-exist, of which many examples may be found. To speak of these three fundamental degrees of elevation, without any doubt one method of cultivation is better adapted to the lowest than to the highest land, for the former is hotter than the latter; and it is the same with hilly ground, as it has a more temperate climate than either. And these differences in lands belonging wholly to one or other of the three kinds is the more marked the greater their extent.

3 Thus where there are wide plains, the heat is more intense—as in Apulia where the air is comparatively heavy and sultry; and where there are mountainous districts, as on Vesuvius, the air being lighter is consequently more wholesome; and the farmers below suffer more in summer, those above
4 more in winter. In spring time the same crops that are sown on high levels are sown earlier on the plains, and can be garnered there with greater despatch. Moreover, both sowing and mowing take more time on the high than on low grounds. Some things grow more freely and strongly on mountain lands, owing to the cold—firs and pines, for instance; on low ground, because the climate is more temperate, poplars and willows flourish; some things are more fertile on high ground, as the

arbutus and oak, others flourish better on low lands, as, for example, the almond and the large Mariscan fig. On hills of no great height the crops are more akin to those of the plain than to those of the mountain, while with high hills it is just the reverse.

5 These three types of land (marked by differences of level) occasion certain differences of cultivation, for corn crops, it is thought, do better on the plains, vineyards on hills, and woods on mountains. As a general rule those who cultivate champaign lands do better in winter time, because then there is grass in the meadows and the pruning of trees can be done more easily. On the other hand, summer is more favourable to mountainous districts, for then there is plenty of green fodder there, which is parched on the plain, and the air is cool, which
6 suits the cultivation of trees. Champaign land, the whole of which slopes uniformly in one direction, is better than that which is absolutely level, because a plain, when it has no fall for drainage, is apt to become swampy, and the more uneven the surface the worse it is, as it gets full of water owing to its hollows. These three and similar differences in elevation of land, affect cultivation in different ways.

CHAPTER VII

THE SITE

1 As to the natural configuration, says Stolo, I fancy that Cato hits the mark when he writes that the best ground is that which lies at the base
2 of a mountain, and faces South. Here Scrofa breaks in with

Concerning artificial configuration, I have this remark to make—productiveness varies directly with pleasing appearance, as in the case of trees supporting vines, which give better results if they are planted in *quincunx*[1] order, owing to their symmetrical lines and the reasonable intervals between each tree. Thus our ancestors, from a given piece of land, badly sown, produced wine and corn inferior both in quantity and quality; for plants arranged in proper order take up less room, and interfere less with one another in respect of sunlight,
3 moonlight, and air. There are several facts which might lead us to expect this. For instance, nuts which would go when whole into a peck-measure,

[1] *In quincuncem.* Like the Five on a playing-card. "Five trees so set together, that a regular angularity, and through prospect, was left on every side. Owing this name not only unto the Quintuple number of Trees, but the figure declaring that number, which being doubled at the angle makes up the letter X, that is the Emphatical decussation, or fundamentall figure" (Sir Thomas Browne).

owing to their shells being compactly arranged by nature, when once broken up could scarcely be packed into a peck-and-a-half measure. More-
4 over, trees which have been planted in orderly fashion, get the sun and moon uniformly from all sides; the result being more grapes and olives and earlier ripening—a double result which necessarily leads to the two others—more grape-juice and oil, and more profit.

5 Now follows the second point mentioned: the nature of the soil on a farm. And it is to this that we generally allude when we speak of a farm as good or bad. For the number and nature of the things that can be sown and grown upon it is of importance, the same soil not being equally suitable for all kinds of produce, but one for vines, another for corn, and so forth, different soils suiting
6 different things. Thus in Crete, in the neighbourhood of Gortynia, there is, we are told, a plane-tree which does not shed its leaves in winter; one also in Cyprus, as Theophrastus remarks; and at Sybaris, now called Thurii, there is an oak within sight of the town which has the same peculiarity. The parts about Elephantine, also, show a marked contrast with Italy, in that neither figs nor vines there shed their leaves at all. Owing to the same cause many trees bear twice; for example the vines near the sea at Smyrna, and the apple-trees in the Con-
7 sentine country. Another example of the same fact is that while in unreclaimed land trees bear more abundantly, in that which is cultivated the

fruit is of better quality. For the same reason some plants can live only in a watery place, or even in water itself, and this again with a difference, for some can grow in lakes only, as reeds in the Reatine country; others in rivers, as in Epirus alder-trees; others in the sea, as palms and squills do according
8 to Theophrastus. When I was in command of an army in Transalpine Gaul—in the interior near the Rhine—I came to several districts where neither vine, olive, nor fruit-tree would grow, where they manured the fields with "marne,"[1] dug from the ground, where they could get salt neither by digging nor from the sea, but used instead of it salt charcoal made by the burning of certain woods.

9 Said Stolo, Cato arranges the different kinds of land in order of merit and divides them into nine classes. In the first he places land on which you can have vineyards yielding plenty of good wine; in the second, well-watered garden land; in the third, that in which willows can be grown; in the fourth, lands suitable for olive yards; in the fifth meadow lands, in the sixth corn lands; in the seventh, woods for timber; in the eighth, small trees, and in the ninth, land suitable for an oak-forest yielding acorns.

10 I am aware, said Scrofa, that Cato wrote thus; but it is not everyone who agrees with him;

[1] *Candida fossicia Creta* no doubt is "marne"—a natural mixture of lime and clay—which is still much used in France as manure. It is the *marga* or *Candida argilla* (Pliny, N. H., xvii, 7), called by the Greeks λευκάργιλλος.

for some—and I am of the number—put good meadow-lands in the first rank. Our ancestors called *prata*, *parata* (ready) for this reason—Caesar Vopiscus, the ex-aedile, when pleading a case before the censors, called the plains of Rosea the nursery of Italy, seeing that if you left a pole there overnight it could not be seen next morning for the grass.

CHAPTER VIII

ON VINE-TRAINING

1 An objection sometimes made to vineyards is that their cost eats up the profit. It depends, said I, upon the kind of vine, for there are many. Some keep to the ground and need no supports, as in Spain; others are trained up—the so-called "yoked vines," to which class Italian vines mostly belong. In connection with the latter class, two terms are used, viz., *pedamenta* (props) and *iuga* (espaliers); the uprights which support the vine are called *pedamenta*, the supports which are placed cross-wise have the name of *iuga* (yokes). Hence,
2 too, the term "yoked vines." Of these *iuga* there are roughly four kinds—the pole, the reed, cords, and withes. Poles are used in Falernum, reeds in Arpinum, cords in the country about Brundisium, and withes in the district of Mediolanum (Milan). There are two methods of training vines, the one proceeding on lines at right angles to the trees, the

other by slanting lines, the vines being trained lengthways and sideways.[1] The latter is the usual way in Italy. If the material needed for this training grows on one's property, the cost is not formidable; if much can be had from a neighbouring
3 estate, it is but trifling. Of the four classes of yokes above mentioned, the first requires willow plantations, the second reed-beds, the third rushes, or some similar plant, the fourth dwarf-trees, which are connected by trailing branches of the vines. The Milanese use for this trees which they call *opuli* (maple trees); at Canusium they employ fig trees, the branches of which are strengthened by reeds.[2]
4 The prop, too, is of four kinds: one is stout—the

[1] *Compluviata.* In the ancient Italian house the roof of the *atrium* sloped inwards and downwards from each of its four sides towards the centre, where a square aperture was left through which the rain might fall into the *impluvium*, a tank let into the floor to receive it. The sloping sides of the roof, with the aperture mentioned, were called the *compluvium*. When a vine was trained along four strings, which ran from the *iugum* (horizontal pole connecting two trees) to four upright stakes (two on each side of the *iugum*) which did not stand as high as the *iugum*, the arrangement was called a *compluvium* from its resemblance to the *compluvium* of the house; and the vines were said to be *compluviatae*. Cf. Pliny, N. H., xvii, 21: *Compluviata copiosior vino est, dicta a cavis aedium compluviis. Dividitur in quaternas partes totidem iugis.*

[2] *Hardulatione* (Politian), *ardulatione* (Jenson), etc., are both unintelligible. Of the emendations *harundulatione* and *arundinatione* (Schneider), the former seems the better. Gesner, in support of *harundulatione*, suggests the translation here adopted, and quotes Pliny, N. H., xvii, 22: *Saluberrima in iugo harundo connexa fasciculis.* Pontedera suggests *in harum iugatione.*

best that is brought into the vineyard—being of oak or juniper, and is called *ridica*; the second, a bough made into a stake—the harder the better, as it lasts longer. When the earth has rotted the lower end, which crumbles away, the prop is turned round and the bottom becomes the top. Failing these two, a third kind is got from the reed plantation. From it some reeds are taken and bound together by strips of bark. These are then put into earthenware tubes, of which the bottom has been knocked out, so that superfluous moisture may be able to run through. These bundles of reeds are called *cuspides*. The fourth kind is a natural prop of the same kind, when the vineyard consists of vines trained from tree to tree. Some people call
5 these traverses *rumpi*. The vine ought to be the height of a man, and the props should be placed at such a distance from one another as to allow a yoke of oxen to plough between them.

The least expensive vineyard is that which, without supports, provides wine for the wine-jar. There are two varieties of this—one where the grapes rest on the earth, as is the case in many places in Asia, in which foxes often share the vintage with men. Besides, if the land breeds mice, the yield is less, unless you fill the vineyards with mouse-traps, as
6 they do in the island of Pandateria. There is another kind of vine, of which only that shoot which gives evidence of bearing grapes is raised above the ground; under it, when the grape is forming, are placed little forked sticks about two feet high,

lest the bunch be unable to learn how to hang on the twig until the vintage be over, and then have to be taught by means of a string or the band which the ancients used to call a *cestus*.[1]

As soon as the owner sees the back of the grape-picker, he takes back home the little forked sticks to spend the winter there, that he may make use of their services without further expense another year.
7 In Italy the men of Reate adopt this practice. These differences in method depend mostly upon differences of soil, for when the latter is naturally damp, the vine must be grown high, for wine, when it is being generated and grown, needs no water—as it does afterwards in the wine-cup—but sun. And this is the reason, I think, why the vine-shoot in the first place climbs up from the vine into trees.

CHAPTER IX

FARM LAND

1 It is important, as I said before, to know the nature of the land and for what it is good, or the reverse. The term "land" is used in three senses—

[1] *Ne vindemia facta.* Columella, iv, 26 (end), remarks that if the shoot be tied under the support (*iugum*), and is otherwise unsupported, the weight of the growing bunch of grapes will cause it to break. Varro jests here *more suo.* The education of the bunch will be neglected; it will not learn to hang properly until it is dead and hung up in the store-room.

common, proper, or mixed. It is used as a common noun when we speak of the land of the terrestrial globe, the land of Italy or any other country, for in the term so used are comprised stone, sand, and other things of that kind. The word is taken in its "proper" sense when one speaks of land absolutely without the addition of any other word or qualifica-
2 tion; and finally it has the mixed sense when we describe agricultural land as clayey, stony, etc., for in this sense there are as many kinds denoted as by the common noun, and this owing to the fact that the whole comprises various substances. For in fact land taken in this sense, as it is of varying strength and capability, is composed of very many substances, amongst which I may mention stone, marble, rubble, sand, coarse sand, clay, red earth, dust, chalk, ash, burnt earth (land which is heated intensely by the sun, to such a degree that it burns
3 up the roots of the crops).[1] From these various substances, that which goes by the general name of "land," takes, when mixed with any of them, the names "chalky," "gravelly," etc., land, according to the type of soil which predominates in it. And as these types vary, so do the classes into which we divide land, though these classes admit of more minute division, as each may be divided

[1] *Cinis, carbunculus.* Vitruvius (quoted by Schneider) says that land scorched by the sun becomes in Campania *cinis* or *tufa*—in Thuria *carbunculus. Carbunculus* in Pliny seems to mean volcanic earth, or a disease in vines caused by excessive heat (N. H., xvii, 24).

into at least three sub-classes, since, for example, some land is very stony, some moderately so, and some almost entirely free from stones. And the same three degrees of comparison apply to soils in which any of the other substances mentioned (marble,
4 rubble, sand, etc.) exists. Moreover, each of these three sub-classes may be divided into three others, as each is dry, moderately dry, or wet. And these latter differences are of the greatest importance with regard to the crops to be grown. Thus experts would rather sow spelt than wheat on comparatively wet land, wheat rather than spelt on soil that is dry, and sow either on soil that is midway between the two
5 extremes. Again, all these classes may be divided more minutely still. Take, for example, sandy soil, where it is of importance whether the sand be red or white, for the whitish kind is ill adapted for a plantation, while reddish sand is, on the contrary, perfectly suitable. These three differences in land are important—I mean whether it be poor, rich, or between the two, for rich land (as regards farming) is fertile in many things, poor land not so. For example, in thin land, such as the Papinian, tall trees, fruitful vines, stout corn-stalks, are nowhere to be seen, nor yet the large Mariscan fig; and you will find most of the trees and meadows parched and infested with moss; while on the other hand, in rich land like Etruria, you may see fruitful corn-lands which are sown every year, and tall trees, and no moss anywhere. Again, in land of medium quality, as in Tibur, the nearer it comes to being

rich rather than poor, the better it is for all crops, better, I mean, than it would be if it erred in the wrong direction.

7 Here Stolo remarked, Diophanes of Bithynia is not far wrong when he writes, with regard to the kind of land which will repay cultivation or not, that [favourable] indications may be had either from the land itself or from the things that spring from it: from the soil itself, if it be white or black, such as easily crumbles when dug, and if it neither resembles ashes in texture, nor is very heavy: from the spontaneous products of the soil if they are of good growth and bear plentifully fruit of their kind. But now for that third topic which follows—please tell us about the measures of land.

CHAPTER X

MEASURES OF LAND

1 SAID he: Different nations have adopted different measures for measuring their fields. Thus in Further Spain the *iugum*, in Campania the *versus*, whilst with us on Roman and Latin ground, the *iugerum* is used. The *iugum* is what a yoke of oxen can plough up in one day; the *versus* means
2 a square 100 feet by 100; the *iugerum* equals two square *actus*; the square *actus* is 120 feet long and the same in breadth. This measure is called in

Latin *acnua*.[1] The smallest division of a *iugerum* is called a *scripulum*, that is, a square 10 feet by 10. Taking this (*iugerum*) as the unit, land surveyors sometimes when speaking of a bit of land which is left over after they have reached the *iugerum*,[2] call it an ounce, or two ounces, or whatever it be, for the *iugerum* has 288 *scripula*, which is what our ancient *as* weighed before the Punic war.[3] A couple of *iugera*, an allotment said to have been made first by Romulus to each man to descend to his heir, was called a heritage, *heredium*. Afterwards these hundred "heritages" (200 *iugera*) were called a *centuria*. A *centuria* (133 acres) is a perfect square, each side of which is 2,400 feet long. Four *centuriae*, moreover, joined so that there be two together in every direction, are, in the case of allotments to individuals by the State, called a *saltus*.

[1] *Latine acnua appellatur.* Columella, v, 1, 5, mentions the Gallic equivalent for *actus* (half a *iugerum*) as *arepennis* (French *arpent*), and states that this measure was called by the farmers of Baetica *acnua*. In the same section he quotes Varro in relation to the *actus minimus* (480 sq. ft.). Probably some words have dropped out of the text, or *Baetice* should be read instead of *Latine*.

[2] *In subsecivum. In subsecivo* seems a probable emendation. It would mean "in the case of a piece left over." A copyist might easily take *in subsecivo* for *in subsecivo*, standing for *in subsecivom*.

[3] *Unciam agri.* The *as* —originally a measure of weight— was divided into 12 ounces or 288 *scripula* (scruples). The *iugerum* was also divided into 288 *scripula*. Hence fractions of the *iugerum* might be expressed by the sam denomination as fractions of the *as*.

CHAPTER XI

FARM BUILDINGS

1 By not paying attention to the size of the farm many people have failed, some making the farm buildings smaller, others larger than the size of the farm required, and either mistake is bad economy, and bad for the produce of the farm. For the larger the buildings, the more they cost to build and the more to maintain, and when they are too small for the needs of the farm, the produce, as a rule, is
2 spoilt. For instance, it is clear that where there are vineyards, the wine-store must be made large, but where the land grows corn, large barns are required. The farmhouse should be built preferably where it may have water, either within its own enclosure, or, failing that, as near as possible; there should be first a natural spring, and secondly one that never runs dry. Where there is no running water at all, cisterns should be made indoors, and in the open air a pond, the former to be used by people, the latter by cattle.

CHAPTER XII

THE SITE OF THE FARM HOUSE

1 You must be careful to place the farmhouse at the base of a well-wooded mountain—the best situation—where there are wide pastures, and see that it

face the healthiest winds which blow in the district. The farmhouse which faces the equinoctial East has the best aspect, for it has shade in summer, and in winter gets sunshine. If you should be obliged to build close to a river, you must be careful not to build your farmhouse to face it, for in winter it will become exceedingly cold, and in summer unwhole-
2 some. Note also if there be any swampy ground, both for the reasons given above, and because certain minute animals, invisible to the eye, breed there, and, borne by the air, reach the inside of the body by way of the mouth and nose, and cause diseases which are difficult to be rid of.[1] Said Fundanius: What shall I do to escape malaria, if I am left an estate of such a kind? Why, said Agrius, even I can answer that question. You must sell it for as many pence as you can get, or if you can't sell it you must quit it.

3 Scrofa went on: You must not allow your farmhouse to face a quarter from which an unwholesome wind commonly blows, nor must you place it in a basin surrounded by hills, but its situation should rather be lofty than low. Such a place being wind-swept, if any evil thing should be

[1] *Difficilis morbos.* Columella, i, 5, 6, speaks of marshes breeding *infestis aculeis armata animalia, i.e.*, mosquitoes. Schneider's comment on this passage is amusing. "Am I to believe that Varro attributed lingering diseases to these small gnats? Never did any doctor ancient or modern make such an assertion." Varro, however, though he may appear to speak of malarial microbes, does not connect them with "small gnats" as their carrier.

carried thither, it is easily blown away. Moreover, as it gets the sun all day long, it is healthier, for any small insects which breed or are carried there are either blown away or quickly perish from drought.

4 Sudden rainstorms and rivers in flood are dangerous to those who have their dwellings on low-lying ground or in hollows; there is danger also from sudden bands of robbers who can more easily surprise them. For both these reasons high ground is the safer.

CHAPTER XIII

THE FARM YARD AND HOUSE

1 In the farmhouse, stables and cowsheds must be made for greater warmth in winter. Produce, such as wine and oil, must be kept in storehouses on the ground floor (you must also make a place for the oil and wine vessels);[1] dry produce, such as beans and hay, must be stored in raised barns. You must also provide a place for the slaves to occupy when exhausted by work or cold or heat, where they can stroll about or refresh themselves in comfort by
2 sleep. The foreman's room should be close to the door, and he should know who goes in or out at

[1] *Item ut vasa*, etc. The text as it stands in Keil is unintelligible to me. I have adopted Pontedera's conjecture, *item ubi vasa vinaria et olearia esse possint.*

night, and what he is taking with him, especially if there is no door-keeper. In particular you must see to it that there be a kitchen adjoining the farmhouse, for in the dark winter mornings before the sun is up several things are done there, and food is cooked and eaten in it. Moreover, for the wagons and such implements as fear a rainy sky, roofed buildings of sufficient size should be made in the farmyard; for these, if merely stored in the enclosure under the open sky, are only safe from thieves, but cannot stand against bad weather.

3 On a large farm it is better to have two yards: one having in the middle a place where rain-water may collect; or, in case there is running water, a place inside the bases of the pillars that surround the yard, which may be made, if desired, into a half-tank.[1] For cattle returning from the plough-land in summer drink and bathe here, as well as geese, sows,

[1] *Una ut interdius.* The condition of the text here seems desperate. *Interdius*, despite the ingenious attempts of Schneider and others to explain it, gives no satisfactory sense. *Aqua saliens* must mean "running water," *i.e.*, a stream. Pliny (Epist., ii, 17, 25) says that his villa has no *aqua saliens*, though it has wells, or rather springs. I would suggest the reading: *Una ut interius compluvium habeat* aut *lacum*, etc. A copyist might easily have omitted the *aut*, which I have inserted, through the influence of the *at* immediately preceding it. *Cum venit* (the reading of editions before Victorius) would make still better sense.

The pond is called *semipiscina*, perhaps because it would have masonry (the *stylobates*) on one or two sides only, the *piscina* usually on four.

and pigs, when they come back from feeding. In the outer yard there should be a pond for soaking vetch and other things that are better for consumption after
4 being put into water. The outer yard, if it be frequently strewn with straw and chaff, and trampled by the feet of cattle, is useful to the farm through what is taken out of it. Close to the farm buildings there should be two manure heaps, or one divided into two; for the one part should be made of fresh manure, while the other should be taken on to the land only when old, for manure that has rotted is better than that which is fresh. A manure heap is better, too, if its sides and top are protected from the sun by twigs and leaves, for the sun must not suck out beforehand the goodness which the earth requires. And accordingly good farmers, if they can manage to let water flow into it, do so on that account. For thus the juice is best kept in. In the manure-heap some place the slaves' privies.

5 A building should be made under the shelter of which you can put the whole of the farm's harvest —which some call a *nubilarium*. It should be close to the threshing floor, where your corn is to be threshed; of a size proportionate to that of the farm; open on one side—the side next the threshing-floor—so that you can both easily throw the corn to be threshed into it, and, if the sky begins to cloud over, you can quickly throw it back again. It should have windows on that side where the wind can best blow through it.

6 Said Fundanius: A farm is assuredly more

profitable as far as the buildings are concerned if in building you aim at the thrift of the old-time farmers rather than the extravagance of the moderns. For the former built farmhouses to match the farm produce, the latter to gratify their unrestrained self-indulgence. And, as we should expect, the farmhouses of the ancients cost more than their suburban villas, but nowadays they generally cost less. In old times a farmhouse was praised if it had a good farm-kitchen, roomy stables, wine and oil store-rooms of a size suitable to the farm, with a paved runnel sloping to a vat; for often when new wine is laid down, jars, as in Spain, and butts, as in Italy, are burst by the fermentation of the must. And they saw to it that in a farm of this kind there should be everything else needed for working. But now on the other hand the size and decoration of a man's country-house is his main care, and he tries to rival those country-houses of Metellus or Lucullus, the building of which had the worst consequences for the State. To-day people are anxious that their summer suite of dining-rooms shall face the coolness of the East, and their winter suite the West, instead of doing as the ancients, whose care was the aspect of the windows in the wine or oil store-rooms, since the produce of the grape seeks comparatively cold air for its casks while the oil store-room needs hotter air. Again, if there is a hill, see that your farmhouse be placed near it—unless there is something to prevent your doing so.

CHAPTER XIV

FENCES AND WALLS

1 Now concerning the fences which are to be made to protect the farm or part of it: of these protections there are four kinds—one is the natural fence, the second is of timber, the third that used for military purposes, and the fourth of masonry. Each of these kinds has several species. The first kind—the natural fence—is a quick-set hedge, to form which brushwood or thorn trees are usually planted. This has roots, and need not fear the lighted torch of a
2 mischievous passer-by. The second is of forest-timber, not live wood. It is made of stakes set close together and interwoven with brushwood; or of broad stakes through which holes have been bored, while through the holes in each upright two or three poles are passed; or it is made of tree trunks set up in a row and sunk into the ground. The third, the military fence, is a trench-and-rampart arrangement, but the trench is suitable only if it can hold all the rain-water that comes down, or has a fall so that the water may run off the farm.
3 That rampart is good which is continuous on the inside with a ditch, or is so high that it is not easy to get over it. Fences of this kind are usually made parallel with highways, or following the course of streams. On the Via Salaria, in the neighbourhood

of Crustumerium, you may see in several places embankments and ditches together, to prevent the river from damaging the fields. Embankments without trenches are made, which some people call walls as in the country about Reate. The fourth, the fence made by the builder, comes last—the wall-fence, I mean. There are roughly four kinds: they are made of stone, as in the country round Tusculum, of kiln-baked bricks as in the Ager Gallicus, of sun-dried bricks as in the Sabine country, or of earth and pebbles set in moulds, as in Spain and the parts about Tarentum.[1]

CHAPTER XV

TREES AS BOUNDARIES

I MAY add that the boundaries of an unfenced farm are safer if marked by trees planted along them, for otherwise your slaves brawl with their neighbours and your boundary lines may have to be determined by a law-suit. Some people plant pines round the farm—my wife has them in the

[1] *Ex terra et lapidibus.* Pliny, N. H., xxxv, 14, speaks of *parietes formacei*, which *in forma circumdatis utrinque duabus tabulis inferciuntur.* Two boards were set up parallel to each other, and the space between them was filled with concrete. Pliny says that these walls were very durable. This mode of construction is still used in parts of England where chalk and flint pebbles occur.

Sabine country; others plant cypresses as I did near Vesuvius, others elms, as many do in the Crustumerian country; for where it is possible, as it is in that district, seeing that it is a plain, no better tree can be planted, for it is extremely profitable, as it often supports[1] and collects for you many a basket of grapes, supplies to sheep and cattle leaves that they greatly enjoy, and furnishes boughs for hedges, hearth, and oven.

Said Scrofa: Well, these are the four matters which, as I remarked, a farmer should first consider, namely: the configuration of the farm, the nature of its soil, the extent of the land, and the maintenance of its boundaries.

CHAPTER XVI

ON THE NEIGHBOURHOOD OF A FARM

1 THERE remains a second department of the subject, which has to do with what is outside the farm. Now a farm's immediate surroundings, owing to its

[1] *Et sustinet saepe.* So Keil for the MSS. reading. *Et sustinet saepem*, which would mean "supports a fence," in which Schneider and the rest see no sense. But the elms might play the part of the *pali statuti crebri* mentioned in the previous chapter (xv). A row of trees "supporting a fence" is common enough in this country.

close connection with them, are of infinite importance to the farmer.

And here there are four points for consideration: Is the neighbourhood unsafe? Is there no place to which we can conveniently take our produce for sale or from which we can procure what we need? Thirdly, are roads or rivers to convey the produce either absent or unsuitable? And fourthly, is there any thing on the adjoining farms likely to do good or harm to our own?

The first of these questions, whether the district is safe or unsafe, is important, for there is much excellent land which it does not pay to cultivate, because the neighbours are brigands; some land in Sardinia, for example, near Oelies, and in Spain about Lusitania. Those estates which have a suitable market in the neighbourhood for the sale of their produce, and can thence obtain what is needed for the farm, are so far profitable. For many people in the case of farms short of corn or wine or anything else, have to send elsewhere for them; whilst on the other hand there are a good many who have to send away some of their produce. Thus close to a city it pays to cultivate gardens on a large scale, fields of violets and roses, for instance, and many other things which a city welcomes, whereas it does not pay to grow such things on a distant farm which has no available market for them. Similarly if towns or villages exist in the neighbourhood, or even the well-stocked farms and country-houses of the wealthy, from which you can buy cheaply what your

farm requires, while selling to them at the same time your superfluities—props for example, or poles or reeds—the farm is more profitable than if these things should have to be brought from a distance, and sometimes, too, than if you could produce
4 them on your own land. And so, for example, farmers prefer to employ the doctors, fullers, carpenters, etc., in the neighbourhood, to whom they can give work year by year, rather than have their own on the farm; for the death of a single one of these craftsmen is apt to do away with the farm's profit.

Rich men, with large estates, look to the home resources for the supply of this branch of the staff. For where towns or villages are too far away they procure smiths and all the other skilled workmen they need, and keep them on the farm so that their gang of slaves may not have to quit work and walk about making holiday on work-days, instead of rendering the land more profitable by their
5 labour. Hence the rule given in Saserna's book, that no one is to leave the farm save the bailiff, the house-steward, and one other to be appointed by the bailiff; if any one does so, he is not to go unpunished; if he does get off, the bailiff is to be severely dealt with. Better had been the rule, that no one should leave without the bailiff's permission, and that the bailiff should not go without the master's leave so far away as to be unable to return on the same day, and that no oftener than the farm required.

6 The transport of produce makes the farm all the more profitable if there are good wagon-roads or navigable rivers close by. For by both these many things are, as we know, brought to and from a farm.

Again, the products of the farm are influenced by the way in which your neighbour's land is planted. If, for instance, he has an oak-grove on the common boundary, you would be wrong to plant olive trees on the edge of such a wood, for these have a natural antipathy to it so great that, not only do they bear worse, but even, in their efforts to escape, bend away inwards towards the farm precisely as does the vine if planted near cabbages. Like oak-trees, walnut-trees near your farm, if of large size and standing at little distance from one another, make its margin totally unproductive.

CHAPTER XVII

FARM EQUIPMENT—SLAVES

1 I HAVE treated thus far of the four conditions of agriculture which are connected with the soil of the farm, and also of the second four which have to do with its external circumstances. I shall now go on to speak of the instruments of agriculture.

These are divided by some into two parts, namely (1) men who work, and (2) men's tools without which they cannot work; others divide them into

three classes, namely, (1) the class gifted with speech, (2) that which has inarticulate voice, and (3) that which is voiceless. To the first belong slaves, to the second oxen, and to the third wagons.
2 Now in all agriculture human beings are used—either slaves, or freemen, or the two together. Freemen are employed either where the farmer himself, helped by his family, tills the soil, as is the case with most peasant proprietors, or where freemen are hired, as when the more important agricultural operations, such as the vintage or the hay-cutting, are conducted by gangs of hired labourers; and by those whom our countrymen called *obaerati* (debtors)[1]—who still exist in great numbers in Asia, Egypt, and Illyricum. About these as a class I have this to say: It pays better in an unhealthy district to use hired labourers than slaves, and in a healthy district, too, for the more important work of the farm, such as the getting in the vintage or the
3 harvest. Of the qualifications of these labourers, Cassius[2] writes as follows: You are to get labourers

[1] *Obaeratus* probably equals *nexus*, concerning whom Varro, L. L., vii, 5, writes: "The freeman who gave his services as a slave until he could pay the money he owed is called *nexus*, also *obaeratus* (from the word *aes*)." He was not a slave, but could be imprisoned and kept at work by his creditor, from whom the farmer might hire him. From the farmer's point of view he would thus be a *mercenarius* or hired labourer. *Nexum* was abolished by the Lex Poetilia, 326 B.C.

[2] *Cassius*. The Cassius Dionysius of Utica mentioned in the first chapter of this book (i, 1, 1), who translated Mago's great treatise on agriculture.

who are able to stand hard work, who are not less than twenty-two years old, and who will be quick to learn the work of a farm. You may form an opinion about this from the way they have performed other tasks, or by asking those of them who are new to farm work what they have been accustomed to do when with their former master. The slaves
4 should not be timid nor yet of too high spirit. Those set over them ought to know how to read and write and should have received some slight education; they should be of good character and older than the labourers mentioned above—for the latter obey them more readily than they do younger men. In addition to this the one quality necessary in an overseer is practical skill in farm work: for his duty is not merely to give orders, but to set an example, that those under him may imitate him as he works, and realize that his superior position is not without cause,
5 but is the result of superior knowledge. Nor must an overseer be allowed to enforce his orders by the whip rather than by words, provided that the same result can be obtained equally well by the latter. It is well, too, not to have too many slaves of the same tribe, for this is a principal cause of quarrels in the household.

You should quicken the interest of the overseers in their work by means of rewards, and should see that they have something of their own, and women slaves to live with them and bear them children, for this makes them steadier and more attached to the estate. The slaves from Epirus are

a case in point, for owing to these family ties they are of better repute and fetch a greater price than
6 others. The goodwill of the overseers you should win by an occasional mark of esteem, and you ought to discuss, too, with the best of the labourers, the farm-work that is to be done, for where this is the case their sense of inferiority is lessened, and they feel that they are held in some account by their
7 master. Their enthusiasm for work is increased by treatment more generous than usual, by better food and clothing, by occasional exemption from work, or the permission to graze a beast of their own on the farm, and by other privileges of the same kind —so that any who have been given too hard a task, or too severe a punishment, may thus be consoled, and their goodwill and kindly feeling towards the master be restored.

CHAPTER XVIII

SIZE OF THE STAFF

1 As regards the farm-hands, Cato considers two factors: the quantity of land and the kind of crop grown. Taking olive plantations and vineyards, he describes what I may call two typical cases. In the one he gives directions for the management of an olive plantation of 240 *iugera* (160 acres), stating that on a plantation of this extent you should

keep the following thirteen slaves: a bailiff, his wife, five labourers, three herdsmen, one ass-driver, one swineherd, and one shepherd. The second case with which he deals has to do with a vineyard of 100 *iugera* (67 acres), for which he considers necessary these fifteen slaves: one bailiff, his wife, ten labourers, one herdsman, one ass-driver, and one
2 swineherd. Saserna states in his book that one man is enough for eight *iugera*, and that he should dig them over in forty-five days, though four days' work should suffice for each *iugerum*. The thirteen days left over he allows for cases of illness, bad weather,
3 unskilfulness, and idleness. Neither of these two authors has left us a very clear explanation of his standards, for if Cato meant us—as he must have done—to add or subtract in proportion to the greater or less extent of the farm, he should have said so, and he ought to have excluded the bailiff and his wife from the working-staff of slaves, for certainly, if the olive plantation which you are cultivating should be of less than 240 *iugera*, you cannot have less than one bailiff, nor, should your farm be twice as big or more, are you bound therefore to have
4 two or three. Practically, it is only the number of labourers or herdsmen that must be increased according to the size of the farm; and this rule, too, holds good only if the land is of uniform character. If, however, it is not so, to the extent of being unploughable in parts, being of a broken nature and having stiff hills, then you need fewer oxen and fewer herdsmen. I pass over the fact that the stand-

ard set up by Cato, 240 *iugera*, is neither a received
5 unit of measurement nor convenient (a convenient one would have been the *centuria* of 200 *iugera*), though, seeing that the 40 *iugera* subtracted from the 240 to make the *centuria* are their sixth part, I do not see how, on his system, I am to subtract a sixth from the thirteen slaves as well, nor is it any more clear to me how, after deducting the bailiff and his wife, I am to take away a sixth of the remaining eleven slaves.

Again, as to the statement that fifteen slaves are needed in the case of a vineyard consisting of 100 *iugera*: suppose a man has a *centuria*—half vineyard, half olive plantation—it will follow that he must have two bailiffs with their wives, which is absurd. So we must find by some other way a
6 general rule to determine the number of slaves required, and on this head Saserna is better and clearer than Cato when he states that one labourer can get through a *iugerum* in four days' work. Still, if one labourer was enough on Saserna's farm in Gaul, it does not at all follow that such is the case on mountainous land in Liguria.

I conclude then that your best way to settle the question of the size of your staff of slaves and the rest of the farm equipment, will be to note with care
7 three points: the size and nature of the neighbouring farms, the number of hands with which each is cultivated, and the number of labourers you find may be added to or deducted from your staff, with better or worse results in the cultivation of your own.

For in agriculture nature has allowed us a two-fold method, that of experiment and imitation. The first farmers determined most questions by experiment, their descendants, to a large extent, by
8 imitation. We should adopt both courses—sometimes imitating others, sometimes, as a change, making certain experiments of our own—experiments made not at haphazard, but in accordance with some rational plan. For example, if we dig our vineyards over again to a greater or less depth than others, what is the effect of such a proceeding? Thus did they who first hoed the land two or three times, thus those who changed the time of fig-grafting from spring-time to summer.

CHAPTER XIX

OF INSTRUMENTS OF PRODUCTION (SEMI-VOCAL)

1 As for the remaining part of the farm's equipment which I have spoken of as semi-vocal—Saserna writes that for 200 *iugera* of ploughland two yokes of oxen are sufficient, whereas Cato states that three oxen are required for every 240 *iugera* planted with olives; whence it follows that if Saserna is right, a yoke of oxen is needed for a hundred *iugera*; if Cato, one[1] for each eighty. It is my

[1] *Trinos boves.* This conflicts with the statement further on that if Cato is right a *yoke* of oxen is required for eighty *iugera.* Gesner considers *trinos boves* to mean three yokes of oxen! Pontedera inserts the numeral I, i.e., *unus bos.*

opinion, however, that neither of these numbers suits every kind of land, and either number suits some land. For different soils are more or less easy
2 to plough. Some land can be broken up only by oxen of great strength, and often the plough-beam breaks and the ploughshare is left in the land. So, in the case of particular farms, we must while yet without experience be ruled[1] by three considerations: the practice of the former owner, that of our neighbours, and judicious experiments of our own.
3 As to Cato's addition of three asses to carry manure and an ass to turn the mill (in the case of a vineyard of a hundred acres, one yoke of oxen, one yoke of asses, and one ass to turn the mill), we ought to include in this category of semi-vocal instruments only those sheep and swine which will aid production, and the few which are usually kept as the slaves' private property in order that the latter may more easily maintain themselves and stick well to their work. With regard to this kind of stock, not only do those who have pasture land prefer to keep sheep rather than swine, but those also who keep them not on account of the pasturage, but for the sake of their manure.

Dogs in any case you must have, as the farm is not safe without them.

[1] *Quo sequendum . . . regula*, etc. Schneider, with no support from MSS., reads *regulam*, etc. *Regulā* (for *regulam*) might easily be corrupted to *regula*; and the reading of the text is at the least extremely harsh.

CHAPTER XX

OF OXEN AND DRAUGHT ANIMALS

1 Of all the quadrupeds, then, we will consider first the oxen you are buying for the plough, and say what kind is suitable for the purpose. These should be unbroken when you buy them, and not less than three, or more than four years old; they must be strong and well-matched, lest in their work the stronger wear out the weaker; they should have wide horns, be black for choice, with broad foreheads, flat noses, broad chests, and well-furnished quarters.

2 Those which have grown up in plains should not be bought for use in a mountainous and stiff country, and the converse is equally to be avoided.[1] When you have bought unbroken heifers, if you

[1] *Nec non, contra, si incidit, ut sit vitandum.* So Keil, whose punctuation seems here to be wrong. Zahlfeldt ("Quaestiones Criticae" in Varr. R. R., Berlin, 1881) suggests, no doubt rightly, that the comma should be placed at *sit*. He was anticipated, however, by the Italian edition of 1846, where this punctuation is adopted. Victorius, in his "most faithful and ancient MS.," found *nec non tra*, and suggests *nec contra*, etc., the translation of which would be "and the converse need not be avoided"; but Columella (vi, 2, 12) distinctly states that both changes—from mountains to plains and plains to mountains—are bad. The order of words in the phrase *contra si incidit ut sit* for *si incidit ut sit contra* is quite Varronian.

put their necks into *furcae*,[1] which are fastened to them, and then give them food, in a few days they will become tame and easy to break in. This you may then proceed to do, but gradually, pairing the one new to the work with one who knows it—for they learn to obey most easily through imitation. You should begin on level ground, and without a plough, then with a light one, and the first land ploughed should be sand or
3 soft soil. Draught oxen should similarly be trained by making them draw in the first instance empty wagons—if possible through a village or a town where the frequent creakings and variety of objects rapidly accustom them to these things, and prepare them for useful work. Again if you put a draught ox on the right side, you must not keep him persistently in that position, for if he is left-hand and right-hand ox by turns, the change is a rest to him when he is distressed by being too

[1] *Furcae*. According to Plutarch (Coriol., 24, and Quaest. Rom., 70) the *furca* was a fork-shaped piece of wood by which the pole was supported (ξύλον ἁμάξης ᾧ τὸν ρυμὸν ὑπερείδουσιν). It was shaped like the letter Λ, and was used for the punishment of slaves. The neck was inserted at the fork and the arms tied to the instrument. Nero, when in hiding, was told that the Senate had ordered him to be punished *more maiorum*, which meant *nudi hominis cervicem inseri* furcae *corpus virgis ad necem caedi* (Sueton., Nero, 49): "To be stripped naked, his neck put in the *furca*, and to be beaten to death with rods." He then committed suicide!

Vergil (Georg., iii, 166) puts the necks of his oxen into "loose collars of pliant osier," as a preliminary to breaking them in.

4 long on either side. Where the soil is light, as in Campania—for there they do not plough with heavy oxen but with cows or asses—you may the more easily put them to a light plough, to the mills, or to any carting there may be on the estate itself. For the latter purpose some people use young asses, others cows and mules—the choice depending on the pasturage available, for it costs less to keep an ass than a cow, though the latter is more
5 profitable in itself.

In this matter, the farmer has to consider the surface nature of his land. Where it is hilly and stiff, he must get draught animals of greater strength, and preferably such as may be themselves profitable while doing the same amount of work.

CHAPTER XXI

OF DOGS AND FOUR-FOOTED STOCK

It is better to keep a few fine and active dogs than many. These should be trained to watch by night and to sleep shut up during the day. What is to be done[1] with four-footed stock not broken to harness

[1] *De indomitis . . . faciundum.* This looks like the heading of a section which has strayed. In the Latin "table of contents" (certainly not by Varro as it stands, for *Idus Augustae* are there mentioned, and the month Sextilis was not called

and with cattle? If meadow-land form part of the farm and a farmer owns no cattle of his own, he must dispose of the pasturage, and graze and stable other people's cattle on his farm.

CHAPTER XXII

OF INSTRUMENTS OF PRODUCTION (MUTE)

1 CONCERNING the other mute instruments of production—baskets, casks, etc., the following rules are to be laid down: nothing should be bought which can be grown on the farm and made by the household. Under this head come mainly things made of osiers and the wood the country supplies. Such as baskets, frails, threshing sleighs, stakes,[1] and rakes, as well as things made of hemp, flax, reeds, palm[2] and bull-rushes, such as wagon ropes, bands, and mats.
2 Things which cannot be got from the farm will not diminish your profit much by their cost if in

Augustus before 27 B.C., whilst this book was written 36 B.C.) after *De Canibus* comes *Si prata sunt in fundo, pecus non est, quid sit faciendum.*

[1] *Valli.* I have translated "stakes"—the usual meaning of the word—though one suspects that Pontedera is right in making it a diminutive of *vannus* (a winnowing fan) on the analogy of *catella* from *catena*, *homullus* from *homo* (*homonlus*), *villum* from *vinum*, etc. Diminutives were a marked feature of Vulgar Latin.

[2] *Palms.* Columella (v, 5, 15) speaks of *palmeae tegetes* used for sheltering the vines. These "mats" were probably made of vine stalks.

buying you consider usefulness more than beauty, especially if you are careful to choose a market near at hand where they can be had both good and cheap. Of these different implements the choice and number depend on the size of the farm, for
3 more are needed if it be of wide extent. Thus Cato, said Stolo, first takes as an example a farm of a certain size, and then writes about such a one: that the man who cultivates an olive plantation of 240 *iugera* should equip it with five complete sets of apparatus for making oil,[1] which he enumerates in detail. Thus: coppers, pitchers, a pot with three spouts,[2] etc., all of bronze: next, implements of wood and iron, such as three large wagons, six ploughs with their ploughshares, four crates for manure, etc. He mentions, too, the kind and number of iron tools needed, as eight iron forks, the same number of hoes, half as many shovels, etc.

4 He also gives another prescription for the equipment of a vineyard, stating that if it consists of 100 *iugera* it should have three wine presses with all

[1] *Vasa olearia*, etc. From a comparison with Cato (De R. R., 10 and 12) it seems clear that five "vessels" of each kind are here meant, for Cato (12, 1) mentions five presses, five *suculae*, five *funes lorei*, and so on.

[2] *Nassiterna*. Usually derived from *nasum* and *ter*, a vessel with three noses (spouts or handles). Juvenal, v, 47, speaks of a cup with four "noses," most probably handles. It may be that the word has no connection either with *nasum* or *ter*. A gloss of Festus has *nassiterna est genus vasis aquarii ausati et patentis*, a wide vessel for carrying water having a handle (or handles).

accessories, casks with their lids to hold 800 *cullei*, twenty tubs to hold grapes, twenty to hold corn, and other things of the same kind. Fewer of these are certainly recommended by other writers, but I think that Cato set down so large a number of *cullei* that the farmer might not be compelled to sell his wine every year. For old wines fetch more than new, and the same wine more at one time than
5 another. He also writes at great length about the different kinds of tools, their nature and number, mentioning knives, shovels, harrows, etc., of which some kinds include several sorts. For example, knives: we are told by the same author that forty pruning knives are needed for the vines, five small knives for cutting string, etc., three for pruning trees and ten for clearing brambles. So much for this point.

6 Said Scrofa: The owner should have an inventory of all the implements and furniture of the farm —one copy at the farm, the other in town; while the bailiff should keep all the things mentioned in the inventory each in its proper place at the farmhouse. Those which cannot be kept under lock and key should be placed in as conspicuous a position as possible—more especially those which are employed only occasionally, such as the baskets, etc., used at the vintage. For what is seen every day runs less risk from the thief.

CHAPTER XXIII

ON CROPS

1 AGRASIUS went on: Since we now have discussed the first two sections of our four-fold division, that, namely (1) which concerns the farm itself, and (2) the instruments of its cultivation, I am now waiting for the third section.

Well, answered Scrofa, as I conceive the produce of the farm to mean useful products sown and grown on it, two matters remain for consideration—what are the best things to sow, and which are the best places to sow them in. For one soil is suitable for grass, another for corn, another for wine or for oil. The same may be said of crops which serve as fodder, which includes *ocimum*,[1] mixed grain (cut when green), vetch, lucerne, clover
2 (snail-clover) and lupins. For it is not everything that can properly be sown on rich land, nor is nothing to be sown on poor land, for it is better to plant crops that do not need much nutriment on the thinner soil; such are clover and all leguminous plants with the exception of chick peas—for they, too, come under the heading of leguminous plants, being plucked from the ground, not cut. And these plants are called *legumina*, because *leguntur*—they
3 are plucked. In rich land it is better to sow what

[1] *Ocimum*, *farrago*. For Varro's definition of these words, cf. cap. xxxi, §§ 4 and 5, of this book.

needs more nourishment, cabbage, for instance, or wheat, rye, or flax. Some things should be sown with a view[1] not so much to present profit as to next year's crop, because when cut down and left there they improve the soil. Thus lupins, before they produce many pods—and sometimes bean-stalks, if the podding stage be not so far advanced that it is profitable to pull the beans—are usually ploughed into poor land for manure.

4 We must not either, when we come to plant, neglect the claims of those things which bring profit through the pleasure they afford, as, for example, what are called "orchards" and "flower gardens"; or again of those things which, without contributing to man's food or appealing to his perception of, and pleasure in the beautiful are yet inseparable from the productiveness of the farm. So you must choose
5 a place suitable for beds of willows and reeds and other plants which require moisture, and, on the other hand, a place for corn crops, and especially for beans and other things also which suit a dry district. In the same way you must sow some things where there is shade, as, for instance, wild asparagus,[2] because the cultivated variety (which the wild

[1] *Prospicientem.* In imitation of the common Greek construction, σπαρτέον ἐστι . . . ἀποσκοποῦντα.

[2] *Corruda* seems to be wild asparagus. Cf. Cato, R. R., vi, 3: *Ibi corrudam serito unde asparagi fiant*; and Pliny, N. H., xix, 8: *Indicavimus et corrudam. Hunc enim intellego silvestrem asparagum.* Pliny also states that *corruda* becomes asparagus.

sort becomes) loves shade, and in sunny places you must sow violets and make gardens, for their growth depends on sunlight. And so for other things. And in one place you must plant a shrubbery, so as to have osiers for plaiting such things as wicker baskets, winnowing fans,[1] and hurdles; in another you may plant and grow a wood for timber, [in another] a wood where you may catch birds; in another you should grow hemp, flax, rushes, esparto grass—for weaving shoes for the oxen and making string, cords, and ropes. Some places, indeed, are suitable for sowing more than one thing at once. Thus, in newly planted orchards, when the seeds have been sown at proper intervals and the saplings planted in rows, in the first years before the roots can go far, some people sow garden flowers, others other things; but when the trees have grown strong they do not do so, for fear of damaging the roots.

Said Stolo: In this connection what Cato writes about crops seems good—that heavy and fertile soil, if it be without trees, should be sown with corn; while if the same is cold, it is best to sow on it turnips, radishes, millet, and panic.

[1] *Vallus* or *vallos*. Cf. note on xxii, 1.

CHAPTER XXIV

OF OLIVES, AND TREE PLANTING

1 He states also that in heavy and hot land, the olive[1] for pickling, the "radius major,"[2] the Sallentine, the orchis,[3] the "posea," the Sergian, the Colminian, the "waxy," should be planted—and of all these varieties you should choose that which enjoys the best local reputation. For an olive plantation no land is at all suitable that does not face the west wind and 2 get plenty of sun. In comparatively cold and poor soil the Licinian olive should be sown. If you put it in heavy or warm land, the *hostus*[4] (yield) becomes worthless, and the tree dies from its luxuriant bear- 3 ing, and is infested by red moss. By *hostus* is meant the amount of oil returned at each "making," by "making" the amount of olives treated at one time — which some place at 160 *modii*, others bring as low as 120, the number depending on the size and number of receptacles used in making the

[1] *Oleam conditaneam*, etc. In Italy, then, as now, there were many varieties of olive. In 1788 Giovanni Presta published a memoir "on the sixty-two samples of different olives presented to Ferdinand IV, King of the Two Sicilies."

[2] *Radius*. The long shuttle-shaped kind.

[3] *Orchis*. The oval olive. *Posea* (Pliny, *pausea*). The bitter kind.

Presta thought that many of these names were traceable in Italian, as for instance *pausea*, Italian *Pasóla*; *Licinia*, Italian *Risciola*, etc.

[4] *Hostus* no doubt = *haustus*, draught.

oil. As for Cato's statement that elms and poplars should be planted round the farm to provide leaves for the sheep and cattle, and timber for use on the farm (this, however, is not necessary on all farms, nor where it is so are leaves the chief object) they may usefully be placed on the north side, as they do not then cut off the sunlight.

4 Scrofa added on the same authority that if the place be damp you should plant there shoots of poplar trees and make a reed plantation. It is first dug with a large spade, and then the eyes of the reed[1] are planted at intervals of three feet [and with them wild asparagus, that the garden variety may result from it]. Both asparagus and reeds need pretty much the same kind of treatment. Osiers should be planted round the reed bed, to provide material for tying up the vines.

CHAPTER XXV

OF VINES

As to the kind of place in which to plant vines you must observe the following rules. The best and

[1] *Aptam esse*, etc. I have inserted "and with them wild asparagus," etc., from Cato, 6, 3. The construction requires something to be added, and the sense this. Palladius, writing about reed beds (iii, 23), says: "Amongst these you may also scatter asparagus seeds . . . for *asparagus is grown and burnt in the same way as reeds.*"

sunniest situation for wine growing should be kept for the small Aminean variety, the double Eugenean, and the small yellow grape. When the land is heavy or cold the larger Aminean, Murgentine, Apician, or Lucanian should be planted. The other kinds, and especially the common[1] black grape, suit any sort of land.

CHAPTER XXVI

OF VINEYARDS

In every vineyard great care is taken that the supports of the vines be protected towards the north, and if live cypresses are planted to serve as vine-props in alternate rows with the vines, they are not allowed to grow higher than ordinary supports, nor are the vines planted close to them, for vine and cypress hate each other.[2]

[1] *Miscellas.* *Cf.* Hesychius: Μίσκελλος· εὐτελὴς καὶ μέλας οἶνος.

[2] *Et si cupressos.* It is strange that live cypresses should be used as supports for vines when there is an antipathy between the two plants. Perhaps Varro's statement ends with *patiantur* (or *patiuntur*), and a *grammaticus*, remembering the passage of Varro (i, 16, 6), where the violent dislike of the vine for cabbage (*olus*) is mentioned, added, as a note, *neque propter* olus, etc., which became *neque propter eos*, etc.

It is strange also that no other ancient writer has mentioned the use of *live* cypresses as supports, though Columella (iv, 26, 1) speaks of the tapering prop made of laurel, juniper, or cypress.

Said Agrius to Fundanius: I am afraid the temple-keeper will be here before our friend gets to the fourth act. I am waiting for the vintage. Don't be afraid, said Scrofa, but get ready the baskets and the urn.[1]

CHAPTER XXVII

OF TIMES AND SEASONS

1 Now we have two measures of time: the year created by the sun's annual revolution, and the month which the revolving moon determines. I will first speak of the sun. Its annual course is, to begin with, roughly divided into four parts of about three months each, or more accurately into eight of a month and a half: into four, for its divisions are spring, summer, autumn, and winter.

2 As to the spring sowing, the unploughed land must first be broken up, so that weeds which have sprung up in it may be uprooted before any seed can fall, and at the same time the clods must be made better able to absorb the rainfall by being baked by the sun, and, so loosened, made easier to work. It should be ploughed at least twice, or, better still,
3 three times. In summer the harvest is to be reaped; in autumn, during the dry weather, the vintage to be made; then is the best time for treating your

[1] *Urna.* Vessel holding half an *amphora*, i.e., about three and a half gallons.

woods—the trees to be cut close to the ground, but the roots must be dug as soon as the first rains have fallen, that no new shoots may spring from them. In winter the trees are to be pruned only at times whenas their bark is free from rime and ice after rain.

CHAPTER XXVIII

OF DIVISIONS OF THE YEAR

1 THE first day of spring occurs when the sun is in Aquarius, of summer in Taurus, of autumn in Leo, and of winter in Scorpio. Now, as the first day of the four seasons is the twenty-third after the successive entry of the sun into each of these signs, it results that spring has 91 days, summer 94, autumn 91, and winter 89. These periods reduced to our modern civil calendar make the first days of spring date from the 7th of February, of summer from the 9th of May, of autumn from the 11th of
2 August, and of winter from the 10th of November. With the more minute division certain dates must be taken into account, and these seasons are divided into eight parts: (1) from the time when Favonius begins to blow to the vernal equinox, 45 days; (2) from then to the rising of the Vergiliae (Pleiads), 44; (3) from this to the solstice, 48; (4) thence to the rising of the Dog Star, 27; (5) next to the autumnal equinox, 67; (6) thence

to the setting of the Pleiads, 32; (7) from this date to the winter solstice, 57; and (8) thence to the blowing of Favonius again, 45.

CHAPTER XXIX

OF THE FIRST DIVISION

1 In the first interval—between the time when Favonius begins to blow and the vernal equinox—the following things should be done: Seed beds of every kind should be sown, the small trees which support the vines pruned, the meadows manured, the roots of the vines cleared, the outcropping roots cut off, the meadows weeded, willow beds planted, corn-lands hoed. *Seges* (corn-land) means land which has been ploughed and sown, *arvum* (plough-land) that which has been ploughed but not yet sown; fallow-land,[1] land which has been sown before it is ploughed and sown again (in the
2 third year). The term *proscindere* (to cleave) is used of the first ploughing, *offringere* (to break up) of the second—for big clods are thrown up, as a rule, by the first ploughing; when land is ploughed the second time they call it "breaking it up." At the third ploughing, when the seed has been cast,

[1] *Novalis ager.* The word indicates two kinds of land: (1) unbroken grass-land (Columella, vi, Praef.); (2) land that was tilled and allowed to rest alternately. *Cf.* Varro, L. L., v, cap. 4: *Contra qui intermittitur* (*ager*) *a novando* novalis.

oxen are said to "furrow" when by means of small planks attached to the ploughshare they cover the corn that has been sown on the ridges, and at the same time cleave trenches to carry off the rain-water. Some people who do not own such broad acres—as in the case of Apulian and similar farms—then usually break up any great clods left on the ridges by means of hoers. When the plough makes a gap, a channel, with the share, it is called a furrow. That which is between two furrows—the raised earth—is called a ridge (*porca*), because that part of the corn-land "casts forth" (*porricit*) the corn. In the same way, too, when giving the entrails to the gods, they used the term *porricere* (to cast forth).

CHAPTER XXX

THE SECOND PERIOD

In the second period—between the vernal equinox and the rising of the Pleiads—the following is to be done: the corn-lands to be weeded—that is, the weeds cleaned from them; oxen to do the first ploughing, willows to be cut, the meadows fenced. Such things as should have been done before and are not quite finished must be done now, before they (the plants) begin to put forth buds and flowers, because if deciduous plants have begun to

blossom,[1] before planting, they are from that moment unfit for planting. The olive must be planted and pruned here and there.

CHAPTER XXXI

THE THIRD PERIOD

1 In the third period—between the rising of the Pleiads and the summer solstice—the following things should be done: dig or plough round the young vines, then hoe, that is, break the soil, to get rid of all clods. People use the word *occare* (to hoe), because by hoeing they destroy (*occidunt*) the clods. The vines must be "stopped," but by a man who knows his work, as this is an operation of greater importance than pruning. It is to be per-
2 formed on the vine, not on the tree. "Stopping" means pinching off from the rod all but two, or occasionally three, of the strongest shoots that spring from it, lest, if all be left on, the vine-rod should be unable to furnish sufficient sap. Accordingly, in the vine nursery, when the vine first comes up from the ground it is usual to cut it entirely back, in order that on coming up again it may have a stronger stem, and greater power to produce shoots.
3 For a poor stem is barren from its weakness, and

[1] *Si quae folia*, etc. Cf. Geoponica, iii, 5: *δήλου ὄντος ὡς πᾶν φυτὸν πρὶν ἐξοιδῆσαι πρὸς βλάστησιν δεκτικόν ἐστιν εἰς φυτείαν. Οὐδὲν γὰρ βλαστῆσαν ἅπαξ δυνήσεται φύεσθαι.*

incapable of producing the vine-shoot, which is called when comparatively small *flagellus*, and when larger and already beginning to bear grapes a *palma*. The first word *flagellus*[1] is derived by changing a single letter from *flatus* (the "blowing of the wind"), thus *flabellum* becomes *flagellum*. The latter, the *palma*, since it is a shoot destined to bear (*parere*) grapes, seems first to have been pronounced *parilema*, from the word *parere*, to beget, then by a common change of letter began
4 to be called *palma*. On the other side it bears a tendril, which is a vine-twig twisted like a curl. It is by these tendrils that the vine grips that along which it crawls, in order to reach a place, from which word (*capere*) it is called *capreolus*.

All fodder must be cut, first *ocinum*, then *farrago*, then vetches, and lastly hay. *Ocinum* is derived from the Greek word ὠκέως, which means "quickly." The same etymology applies to the garden *ocimum* (*basil*). It is further called *ocinum*, because it speedily purges cattle, and is given to them for
5 that purpose. It is cut green from a bean-crop before it produces pods. On the other hand it may be that when barley, vetch, and leguminous plants were sown mixed together, they were called *ferrago*,

[1] *Flagello.* One of Varro's absurd etymologies. The word is derived of course from *flagrum*, and means a "switch." Servius must have had Varro's derivation in mind when commenting on Vergil, Georg., ii, 299; he defines *flagella* as "the highest parts of trees so called because they have to stand many gusts (*flatus*) of wind."

from the fact that they were cut green for fodder from the field with a knife (*ferro*), or *farrago* because it was first made from a crop of spelt (*far*). With it horses and other beasts of burden are purged and fattened in spring time. Vetch (*vicia*) is derived from *vincire* (to bind), which also, like the vine, has tendrils, by means of which, as it creeps upwards to attach itself to a lupin's stalk or that of some other plant, it binds the latter.

If you have meadows to be irrigated you should do it as soon as you have got in the hay. In the dry season water must be given in the evening to the grafted fruit. These may have been called fruit (*poma*) from the fact that they need drink (*potus*).

CHAPTER XXXII

THE FOURTH PERIOD

1 In the fourth period, between the summer solstice and the rising of the Dog Star, most people get in the harvest, for they say that corn is fifteen days in its sheath, flowers in fifteen, and in fifteen becomes dry, being then ripe. You must now finish off your ploughing, which is the more effective the hotter the ground when it is done. After the opening up of the earth by the first ploughing, it must be broken up by the second, that the clods may be destroyed, for at the first only big clods are cloven out of the earth.

2 You must now sow vetch, lentils, chick-peas, the bitter vetch, and other plants which some call *legumina*, others, as some Gallic farmers, *legarica*, both words being derived from *legere* (to gather), because these are not cut, but "gathered" by plucking.

You must hoe your old vineyards a second time, the new ones a third, if by that time there are any clods remaining.

CHAPTER XXXIII

THE FIFTH PERIOD

In the fifth period, between the rising of the Dog Star and the autumnal equinox, the straw must be cut down and stacked, the second ploughing done, the trees cleared of superfluous leaves, and the second crop cut on the meadows which are irrigated.

CHAPTER XXXIV

THE SIXTH PERIOD

1 In the sixth period, our authors state, sowing should be begun at the autumnal equinox, and may go on for ninety-one days; but after the winter solstice you should not sow unless compelled by

necessity—and this makes such a difference that plants which come up in seven days if sown before the solstice, hardly come up in forty if sown later. And they are of opinion that you should not begin before the equinox, because, if bad weather sets in, the seeds generally rot. Beans are best
2 sown at the time of the setting of the Pleiads; while between the autumnal equinox and the setting of the Pleiads, your grapes must be picked and the vintage made. Then one must begin to prune the vines and propagate, and plant fruit trees. In some districts, where the hard frosts set in comparatively early, it is better to do these things in the spring-time.

CHAPTER XXXV

THE SEVENTH PERIOD

1 In the seventh period, between the setting of the Pleiads and the winter solstice, the following things are to be done, we are told.

Plant lilies and crocus.

To form a rose-plantation take a plant which has already[1] struck root, and cut the stem, beginning at the root, into slips a palm-breadth long, then

[1] *Quae iam egit*, etc. Cf. Geoponica, xi, 18. "Others take them (rose trees) up with the roots, then cut into three-inch lengths the roots and what has grown from them, and plant the cuttings at a distance of a cubit from one another."

cover them with earth and transplant them when they too have made a living root. It is not good to make violet beds on a farm, because the earth must be raised for them, and small mounds are thus necessarily produced which are washed away by artificial watering and by rain storms, and so impoverish the soil.

2 From the time when Favonius begins to blow until the rising of Arcturus, you may properly transplant *serpillum* (wild thyme), so called from its creeping (*serpere*).

New ditches must be dug, the old ones cleared out, the vines and their supporting trees pruned—provided that, like most operations of this kind, they be not done within fifteen days after or before the winter solstice—though some plants, such as elms, may properly be planted at that time.

CHAPTER XXXVI

THE EIGHTH PERIOD

In the eighth period, that is, between the winter solstice and the time when Favonius begins to blow, the following things must be done.

Any water standing on the cornfields must be drained off. If, however, it is a time of drought, and the land crumbles easily, it should be hoed.

Prune the vines and their trees.

When no work can be done in the fields, everything that can be done in the farm-house should then be finished off in the dark winter dawns. It is good to have the rules which I have given written out and hung well in view in the farm-house, in order that all, and especially the bailiff, may know them.

CHAPTER XXXVII

THE MOON AND THE SIXFOLD DIVISION OF THE YEAR

1 ATTENTION must be paid also to the days of the moon, which may be regarded as divided into two series; the one in which the moon waxes from new to full, the other in which it wanes to new moon until it reaches the day dividing two months when the moon is said to be ending and beginning. Hence, at Athens this day is called ἕνη καὶ νέα (old and new), whilst others term it τριακάς. Certain farm operations are better done when the moon is waxing than when it is waning, while with certain others the reverse is the case, as the cut-
2 ting of corn and timber. Why, said Agrasius, I practise those precepts not only when shearing sheep, but in the matter of my hair even (following my father in this), for fear of growing bald if I cut it when the moon is waxing. Said Agrius: In what sense has the moon four periods, and what
3 influence has such a division on farming? Did

you never hear in the country, answered Tremelius, the expression, "on the eighth day[1] before the moon begins to increase," and "the eighth day before she begins to wane"? And that of those things which should be done when the moon is waxing, some are yet better done after than before the eighth day before full moon? And that whatever things it was good to do when the moon was waning were better done when that luminary had the least light?

I have already spoken of the fourfold division observed in agriculture.

4 There is, said Stolo, a second division of times connected in a certain way with the sun and moon, and this division is into six parts; for almost all fruits reach their full perfection only with the fifth phase, and then in the farm-house make the acquaintance of the jar or bushel, whence in the sixth phase they are produced for consumption.

These are the six phases: (1) Initial preparation; (2) sowing; (3) rearing; (4) gathering; (5) storing; (6) producing for use. For some things the preparations necessary are: trenching, digging

[1] *Octavo Janam lunam*, like *octavo Kalendas*, etc., with ellipse of *ante*.

Nigidius, according to Macrobius (Saturnalia, i, 9, 8) identified Ianus with Apollo (the Sun-God) and Iana with Diana (the Moon-God). Tertullian (Ad Nat. ii, 15, p. 128) makes Iana the goddess of the bow or the arch.

Here there is no doubt but that the moon is meant, and many commentators (Gesner) have considered *luna* to be a gloss.

over the ground again, and making of furrows, as, for example, if you want a plantation or an orchard; for others, you must plough or dig, as when the land is destined for corn; again, for certain things
5 the earth must be turned to a greater or less depth with the large spade, as some roots—cypress roots, for example—spread but little, while others, such as those of the plane-tree, spread more. Theophrastus, indeed, describes a plane-tree at Athens in the Lyceum which, though it was even then but a young tree, had put out roots thirty-three cubits long.

In some cases after breaking up the land with oxen and plough, you have to plough a second time also before sowing the seed.

Then there is the preparation, if any has to be made, in the case of meadows—namely, fencing them in to keep the cattle out (and this is generally done when the pear-tree begins to bloom), and watering them in good time if they are to be watered.

CHAPTER XXXVIII

OF MANURING

Now we must consider what parts of the farm should be manured, how it is to be done, and what kind of manure should be preferred; for there are

several kinds. Cassius writes that the best is that from birds, excepting marsh or water fowl. Of these he gives the preference to pigeons' dung, as being the warmest and as setting up fermentation
2 in the soil. According to him it should be scattered on the ground like seed and not heaped up, as cattle dung is. I consider the best to be that taken from aviaries where field-fares and blackbirds are kept, for it is not only good for the soil, but supplies a fattening food for both cattle and swine. We find accordingly that the rent paid for aviaries is less in cases where the owner reserves this manure for the farm than where it is thrown in as part of the bargain. Cassius writes that next to pigeons' dung comes that of man, and in the third place
3 that of goats, sheep, and asses; while horse dung is the worst of all, though it is good for corn-crops. For meadows it is perhaps the best of all manures, since it produces an abundant crop of grass, which is the case with the dung of all beasts of burden fed on barley. The dung-hill must be made close to the farm-house, so that the labour of carrying it away may be as small as possible. They say that no serpent breeds in the dung-hill if a piece of oak-wood [1] be driven into the middle of it.

[1] *Robusta materia* = oak wood. Cf. Pliny (N. H., xvii, 9: *Palo e robore depacto fieri iubet. Ita fore ne innascantur his serpentes.*

CHAPTER XXXIX

OF MODES OF PROPAGATION

1 Now with regard to the second phase—the sowing —the following questions arise: What season of the year is naturally adapted for the sowing of a given seed? For as in a farm the aspect of each part of it is of importance, so also is the season at which each kind of plant grows with the least difficulty. Do we not see that some plants blossom in the spring, others in the winter, and that the same
2 things do not flower in autumn as in winter? And accordingly some things are sown, grafted, or mown earlier or later than others. We notice also that though most grafting is better done in the spring than in autumn, yet figs are grafted near the summer solstice and cherries in the heart of winter.
3 And so, as there are four[1] ways in which plants are propagated—one natural, three artificial, namely, the transference of things with quick roots from soil to soil, the taking of shoots from a tree and planting them in the ground, and the grafting on one tree of a slip taken from another, we must examine in detail the conditions of time and place required for each of these operations.

[1] *Quare cum semina*, etc. This section is taken from Theophrastus (H. P., ii, 1), where, however, eight modes of propagation are given.

Vergil (Georg., ii, 10-36), using Theophrastus or Varro, enters into greater detail.

CHAPTER XL

SOWING, PLANTING, AND GRAFTING

1 THE primary seed which is the origin of reproduction is of two kinds. It is either visible or invisible; invisible where the seeds are in the air (and Anaxagoras,[1] the natural philosopher, asserts that there are such), or, as Theophrastus writes, where water flowing on to the land carries them with it.

The visible seeds, as they concern farmers, demand our close attention. Certain seeds, indeed, quite capable of reproducing their kind, are so small as to be seen with difficulty; as, for instance, those of the cypress—for the nuts which grow on this tree, small encapsulated balls, as it were, are not
2 the true seed, which is inside them. Nature has given[2] the original seeds; the others were discovered through experiments made by the farmer. The first seeds were those which unaided by him grew before they were planted; the second, those which were got from the former, and which did not grow

[1] *Anaxagoras.* Theophrastus, citing Anaxagoras, assigns to him both these statements. Cf. Theophrastus (H. P., iii, 1, 4): *Ἀναξαγόρας μὲν τὸν ἀέρα πάντων φάσκων ἔχειν σπέρματα καὶ ταῦτα συγκαταφερόμενα τῷ ὕδατι γεννᾶν τὰ φυτά.*

What Aristotle called *ὁμοιομερῆ* (cf. Lucretius, i, 834) Anaxagoras himself called *σπέρματα τῶν χρημάτων.*

[2] *Dedit Natura*, etc. Cf. Vergil (Georg., ii, 20):

Hos Natura modos primum dedit . . .
Sunt alii quos ipse via sibi repperit usus

before they were planted. With regard to the original seeds we must be careful that they have not lost their virtue through age, that they are not mixed with others, and that they are not the wrong ones through resemblance to another sort. The effect of age on some things is so great as to change their nature; for from old cabbage seed, they say, springs rape, and conversely from rape seed cabbages.

3 In propagating by the second[1] means one must be careful to do so neither too early nor too late. The proper seasons, according to Theophrastus,[2] are spring, autumn, and the rising of the Dog Star, though this does not apply to every soil and every kind of plant. In dry, poor, clayey soils, since they have the least moisture, spring should be chosen; whereas in the case of good and rich land autumn is the best time, for in spring there is much wet. Some people fix about thirty days as the time within which each sowing should be made.

4 The third kind of germ, which is transmitted from the tree to the earth by means of shoots, if planted in the soil, needs care in some instances that the severance from the parent tree be made at the proper time—that is before any flowers or buds appear—and that whatever shoots you transplant be torn[3] from the stock rather than broken off, for the

[1] *Secunda semina.* Cf. xxxix, 3.

[2] *Theophrastus.* Cf. Causa Plant., i, 7.

[3] *Ut ea deplantes potiusquam defringas.* The commentators give little help as to the meaning of *deplantare.* But I feel

wider the heel of a shoot is the firmer it is, or else the more easily does it put forth roots. These shoots are quickly planted before the sap can dry up. In the case of olive cuttings see that the shoot be taken from a young branch, and cut off evenly at both ends; such shoots are called by some *clavolae* (little clubs), by others *taleae*, and are cut about a foot long.

5 With regard to the fourth kind of propagator which from one tree passes to another: attention must be paid both to the tree from which it is taken and that on which it is grafted, as well as to the time and to the manner in which the grafting is done; for oak will not take pear, and this is so, though the apple-tree will. This is a matter carefully heeded by many who give ear to the *haruspices*,[1] for these declare that as many lightning

sure that the translation is right. *Planta* means a sucker, or shoot, and this was torn from the tree so that some part of the mother plant came with it. Cf. Pliny, N. H., xvii, 10: Avulsique *arboribus stolones vixere. Quo in genere et cum* perna sua *avelluntur, partemque aliquam e matris quoque corpore auferunt secum fimbriato corpore.*

Vergil speaks of rending them off. Cf. Georg., ii, 23. *Hic plantas tenero* abscindens *de corpore matrum*, and bids one (ii, 300) not to break them off. . . .

> *aut summas defringe ex arbore plantas,*
> *tantus amor terrae.*

Columella uses the word in this sense, I think (ii, 2, 26, and iii, 10, 7). Theophrastus's word παρασπάς (*surculus*) means literally a shoot "torn off."

[1] *Qui haruspices audiunt*, etc. Pliny (N. H., xv, 15), who

flashes are produced at one stroke from that which has generated the flash as there are kinds of plants grafted on one tree. If you graft a pear-shoot on a wild pear-tree, no matter how good the latter the flavour will not be so good as if you had grafted it on one that is not wild.

6 On whatever tree you graft, supposing it and the shoot to be grafted of the same kind—for example if both be apple-trees—you should (if you hope for good fruit) so graft that the shoot is of a better kind

alludes to this passage, does not, unfortunately, explain it. His words are: *Neque omnia insita misceri fas est, sicut me spinas inseri quando fulgura expiari non queunt facile*: quotque genera insita fuerunt tot fulgura uno ictu pronuntiantur. Again (xvii, 17) he states that *religio fulgurum* forbids the grafting of a mulberry on a branch. He mentions that all lightnings (ii, 52) did not come "from the stars," but *ex proxima atque turbidiore natura*. Some trees were not struck, the laurel for instance (ii, 55). But why the grafting on certain trees should make them more likely to be struck no one explains. Perhaps the *haruspices* found that some trees invited the lightning more than others, and regarded the piercing of holes for grafting as a further invitation. Seneca (Nat. Quaest., ii, 40), discussing *fulmina* (*fulmen* he defines as concentrated *fulgur*), says that one sort goes out by the hole (*foramen*) through which it entered; another kind does not, but shatters what it strikes. He speaks also (Nat. Quaest., i, 1) of exhalation from the earth, some dry, some *ignibus* concipiendis *idonea*. May the whole passage, then, mean that an exhalation of this kind (*illud quod fulmen concepit*), on reaching a suitable tree, makes entry at each of the weak places (where the grafts have been made) and becomes so many *fulmina*? The *libri fulgurales* of the Etruscan *Haruspices* would doubtless explain.

than the tree to which it comes. There is a second way[1] lately discovered of grafting tree upon tree, when the two are close together.

You bring from the tree which you mean to graft to the one on which you intend to graft it a small branch, and in a bough of the second tree which has been cut off at the end and split, you insert the small branch which is now in contact with the place made ready for it, after the part which is to be inside has been whittled on both sides with a knife. You must manage so that on the outside where it will see the sky the inserted branch may have its bark accurately adjusted to the bark of the bough which receives it, and you must take care that the top of the inserted branch stands straight up pointing to the sky. The next year when it has taken well hold you cut it off from the other tree—that from which it was grafted.

CHAPTER XLI

GRAFTS AND CUTTINGS

1 WITH regard to the proper time of grafting we must note in particular those plants which used

[1] *Est altera species.* This method is described with his usual clearness by Columella (v, xi, 13). By it, he says, "any kind of shoot may be grafted on any kind of tree." The possibility of this is denied by modern horticulturists, but, according to Columella, it was a seven-years business, so that the method may not have been given a fair trial in modern times.

formerly to be grafted in spring, but are now grafted at the summer solstice as well—the fig-tree, for example, because of the looseness of its fibre and its consequent need of warmth. Hence in a cold district the impossibility of having plantations of fig-trees.

Rain[1] is harmful to the freshly-made graft, for it
2 quickly rots the small and delicate shoot, so the best time for grafting them (fig-trees) is thought to be when the Dog Star rises. Again in the case of such plants as are of less soft a nature, they tie immediately above the graft some kind of vessel, from which water may drop slowly and prevent the shoot withering before it unites with the tree. The rind of the shoot must be kept intact, and in sharpening it for insertion care must be taken not to lay bare the inner pulp. In order that the rains from without or excessive heat may not hurt it, it is well to smear the graft with clay and bind it up with a
3 strip of bark. At the same time people cut a vine-shoot three days before grafting it, that the superfluous moisture in it may run off before it is used, or they make an incision in the tree, which is to receive the shoot, a little below the point of insertion, that the superabundant moisture may there escape. On the other hand in the case of the fig-tree, pome-

[1] *Aqua recenti.* Nearly the whole of this chapter is taken from Theophrastus (Caus. Plant., i, 6). But the latter distinguishes between grafting and "budding" (ἐνοφθαλισμός), and it is to budding, according to him, that moisture is hostile Τὸ δ' ὕδωρ τῷ μὲν ἐνοφθαλισμῷ πολεμίον κ.τ.λ.

granate, and others of their kind, which are of a comparatively dry habit, one grafts at once. In some cases the shoot to be transferred must be in bud—as is the case with fig-trees.

4 Of these four methods of propagation, for slow-growing things it is best to use cuttings, as is done in the case of fig plantations. For the true seed of the fig-tree is enclosed in the fig which we eat—tiny grains which owing to their small size can hardly produce a paltry sprout. For in general, all[1] things that are fine and dry are slow to grow, whilst things of looser tissue are also more fruitful—as female than male; and this rule holds good for plants also. Thus the fig, pomegranate, and vine,
5 feminine in their softness, grow quickly—the palm, cypress and olive slowly; since in the matter of growth[2] moist things are quicker than dry. So it pays better to plant cuttings from the fig orchard in nurseries, than to bury in the ground seeds from the fig: except indeed where one is forced to do the latter, as for instance if at any time one wants to

[1] *Omnia enim minuta.* From Theophrastus (Caus. Plant., i, 8), *Τὰ μὲν γὰρ πυκνὰ καὶ ξηρὰ δυσαυξήτα κ.τ.λ.* But *πυκνὰ* = not *minuta*, but *densa.* One is sometimes tempted to believe that Varro, despite his long stay at Athens, was not a very good Greek scholar.

[2] *In hoc enim umidiora.* One would have expected Varro to say that these plants were examples of the quicker growth shown by what was loose of fibre and moist than by what was close of fibre and dry. Cf. Theophrastus (*l. c.*), *ἐναυξότερα γὰρ τὰ θήλεα τῶν ἀῤῥένων, ὑγρότερα καὶ μανώτερα τὴν φύσιν ὄντα.*

send, or send for, seeds across the sea; for in that case a string is run through the ripe figs—such as we eat—and when dry they are packed up, and despatched where they are wanted, so that when planted in a nursery garden they may propagate their kind.

6 It is in this way that Chian, Chalchidian, Lydian and African figs, and all the other kinds from over the sea have been brought to Italy. For a similar reason since the seed of the olive-tree is a stone, and a stem grows from it more slowly than from other plants, we therefore prefer to plant in nurseries the *taleae* (cuttings) which we have described.

CHAPTER XLII

ON SOWING LUCERNE

You must be particularly careful not to sow seed on a soil that is either too dry or too sodden, but on well-tempered land. On land of this kind, say our authors, a peck and a half[1] of lucerne per *iugerum* is sufficient. In sowing it the seed must be scattered just as when one sows grass-seed or corn.

[1] *Sesquimodium.* The *modius* = very nearly eight quarts—a peck. It is frequently mistranslated "bushel," which equals four pecks.

CHAPTER XLIII

CYTISUS

CYTISUS[1] is sown in well-ploughed land, like cabbage seed. Thence it is transplanted and set at intervals of a foot and a half; or else small branches are taken from the more hardened plant, and are set out and planted in the same way.

CHAPTER XLIV

OF CROPS

1 BEANS are sown four pecks to the *iugerum*, wheat five, barley six, and spelt ten, but in some places it may be a little more or less—more if the soil be rich, less if poor. So it will be your practice to adopt the quantity which is customary in your district, as the influence of the kind of soil in a district is so great that the same seed yields in some places ten-fold, in others fifteen-fold, as in several
2 parts of Etruria. In Italy too, in the country about Sybaris, they say that the usual yield is a hundred fold, and in Syria near Gadara, and in Africa in

[1] *Cytisum*, the more usual form of which is *Cytisus*, was, according to Keightley ("Flora Virgiliana," p. 381), the name given to two different plants, (1) the laburnum, and (2) the arborescent lucerne.

Byzacium[1] from one peck the return is likewise a hundred pecks. It is, besides, of much moment whether you sow in virgin soil, or in such as has been sown every year (which is called *restibilis*), or in that which has occasionally lain fallow.[2]

3 Agrius remarked to him that in Olynthia the fields were said to be sown yearly, but in such a way as to produce richer crops every third year. Licinius said: Land ought to be left fallow every other year, or else be sown a little more lightly, that is, in a manner less exhausting to the soil.

We will now discuss the third phase, said Agrius,
4 that is the rearing and nurture of plants. Stolo answered, All plants that are born on a farm grow in the ground, conceive on attaining puberty, and, becoming pregnant, when they have reached

[1] *Ad Byzacium.* Byzacium was the name of a tract of country, 250 miles in circumference, on the north coast of Africa, which was inhabited by Liby-Phoenicians. Its chief towns were Leptis, Adrumetum, Ruspina, and Thapsus. Pliny (N. H., v, 4) mentions this extraordinary fertility. Solinus Polyhistor (cap. xxx) alludes to it: *In agro Byzaceno, qui patet passuum ducentis vel amplius milibus, glebis ita praepinguibus ut iacta ibi semina cum incremento centesimae frugis renascantur.* He quotes Varro a little before this passage, so he *may* have read him. Usually he annexes Pliny's facts without acknowledgement!

[2] *In vervacto. Vervactum*=land which has been ploughed and allowed to lie fallow. Sometimes it means land ploughed for the first time. Cf. Servius on Georg., i, 50 (*At prius ignotum ferro quam scindimus aequor*), i.e., *antequam faciamus vervactum.* Cf. Gottlob Schneider's excellent note on this word *vervactum* in his index to the agronomes.

their term bring forth fruits, or the ear, etc. And the seed returns whence it came. So if you pluck off a blossom or unripe pear, or anything else of the kind, nothing grows again in that same place the same year, for it is impossible for the same thing to have two pregnancies[1] in one year. For just as women have fixed times for parturition, so too do trees and the fruits of the earth.

CHAPTER XLV

OF THE GROWTH OF PLANTS

1 BARLEY generally comes up first in seven days, wheat a little later; leguminous plants in about four or five days, with the exception of the bean, for it comes up a good deal later; millet, sesame, and other similar crops appear in about the same number of days, save when peculiarity of district or weather produces some defect which prevents this from happening.

2 Plants of a delicate nature, which are raised in a nursery, should, if the climate be chilly, be covered during the winter with leaves or straw. If rains follow, see that there may be no stagnant water anywhere; for frost is poison to the delicate roots.

Plants do not grow equally in the same time

[1] *Quod praegnationes.* Cf. Theophrastus (Caus. Plant., i, 14): "Nor yet if you remove fruit or flower can the plant bring forth others, as it has not the time necessary for pregnancy."

3 below and above the ground. For in autumn or winter the roots grow more below ground than do the parts above, since they are protected and forced by the warmth of the earth, whilst above ground they are kept back[1] by the more chilly atmosphere. And places in the woods, near which no sower has ever been, show this to be the case; for roots grow before that which springs from them, yet[2] roots go no further than where the sun's warmth reaches. The growth of the roots depends on two things: (1) The fact that nature gives greater extension to roots of one kind of wood than to those of another, and (2) that one kind of soil is more permeable than another.

[1] *Coguntur.* Victorius found in the MSS. *finguntur.* Petrus Crescentius, a writer on agricultural subjects of the thirteenth century, who copied large portions of Varro inaccurately and with little understanding, has *cinguntur.* The passage of Theophrastus which Varro copied is: ὅτι τὰ μὲν ἄνω κωλύεται διὰ τὸν πέριξ ἀέρα ψυχρὸν ὄντα. Keil's *coguntur* translates κωλύεται. *Cinguntur* (are surrounded) goes well with τὸν πέριξ ἀέρα.

As Crescentius possibly had access to MSS. of earlier date than any we possess, and as the change from *finguntur* to *cinguntur* is much less than to *coguntur,* I incline to the *cinguntur* of Crescentius, despite his frequent inaccuracy, and would translate "and are surrounded by a chillier atmosphere."

[2] *Nisi quo tepor venit solis.* Pliny does not believe this. Cf. N. H., xvi, 31: *Quidam non altius descendere radices quam solis calor tepefaciat, idque natura loci tenuioris crassiorisve dixere, quod falsum arbitror.*

CHAPTER XLVI

OF THE HABITS OF PLANTS

WITH regard to such matters, nature displays in plants many differences which are remarkable, as the fact that one should be able to tell the time of year from certain leaves, by their turning—as do the olive, the white poplar, and the willow. For when the leaves of these trees turn,[1] we say that the summer solstice is past. Equally remarkable is what happens in the case of those flowers which are called *heliotropia*, from the fact that in the morning they face the rising sun, and follow its course to where it sets, ever turning towards it.

CHAPTER XLVII

OF THE CARE OF CROPS

PLANTS that have been reared in the nursery from shoots, and whose sprouts are of a somewhat delicate nature—as the olive and fig—must have their tops protected each by two small boards which are

[1] *Propter eorum versuram.* The "turning" of the leaves is in relation to the quarter of the heaven they turn to. Pliny, N. H., xviii, 28: *Alia parte caelum respiciunt quam qua spectavere pridie*; and Theophrastus (quoted by Victorius) says: *στρέφειν γὰρ δοκοῦσι τὰ ὕπτια μετὰ τροπὰς θερινὰς* (Schneider has *χειμερινάς*!) *καὶ τουτῷ γνωρίζουσιν ὅτι γεγένηνται τροπαί.*

fixed[1] in the ground to the right and left of it, and the weeds must be pulled up. This must be done while they are green, for if they become dry they resist fiercely, and, instead of following the hand, quickly snap off. On the other hand, grass that is grown with a view to the hay harvest must not be pulled up while growing, nor even trodden on. So cattle and every kind of beast of burden, and even men, should be kept off a meadow. For the foot of man is perdition to grass, and makes the beginnings of a foot-path.

CHAPTER XLVIII

OF GRAIN

1 Now in the case of crops, that by which the stalk puts forth the grain is the ear. The latter, when entire,[2] has in barley and wheat three parts closely connected—the grain, the husk, and the beard, and also the sheath, present when the ear first emerges. The solid body, the innermost part of the ear, is

[1] *Deligata.* This, the best supported reading, seems to me to give no satisfactory sense. I have translated *deligatis*, though *alligatis ad verticem* is what one would expect. Ursinus considered *deligata* to be a gloss. Crescentius, however, according to Schneider, has *integenda sunt binis tabellis, dextra aut sinistra* ligatis.

[2] *Quae mutilata non est.* Oats and spelt have no beard. Cicero in the De Amicitia (cap. xv) makes Cato say that the beard protects the grain from the bites of small birds.

called the grain, its little envelope the husk, and the long slender needle (as it were) that projects from the husk is called the beard (as if husk and beard formed the peaked[1] cap of the grain).
2 The words "beard" and "grain" are familiar to nearly every one, the word *gluma* (husk) to but few, for to my knowledge Ennius is the only writer who has used it, in his translation of the books of Euhemerus. The word (*gluma*) seems to be derived from *glubere* (to strip), because the grain is stripped of its envelope. Accordingly they call by the same name the envelope of the fig which we eat. The beard (*arista*) is so called because it is the first to become dry (*arescere*), the grain (*granum*) is from *gerere* (to bear), as corn is sown that the ear may bear not the husk or the beard, but the grain, just as the vine is planted that it may bear grapes, not leaves. Again the *spica* (ear), which the countryfolk, following an ancient tradition, call *speca*,[2] seems to have been so called from *spes* (hope),
3 for they sow in the hope that it will come. An ear

[1] *Apex*, the cap worn by the flamens and Salii. It was close-fitting, and from its centre a spike of olive wood stood up. Cf. Servius ad Aeneid, viii, 664: *flamines in Capite habebant pileum in quo erat brevis virga.* The *gluma*, of course, is the cap proper, the *arista* the spike. It is strange that the obvious meaning of this passage should have escaped Schneider and all the commentators before him.

[2] *Spēca*, a rustic development of the original *speica*. The short ĭ normally became ĕ in rustic Latin; as *vea* for *via*, *mateola* for *matiola*.

having no beard is called "hornless,"[1] for the beard forms, as it were, the horns of the ear. When the latter are in process of formation, and are not yet quite visible, they lie hid, covered by a green envelope which is called the sheath, like that in which a sword lies hidden.[2] The upper extremity of the ear now ripe, which is less in size than the grain, is called *frit*; that which lies at the lower extremity of the ear, at its junction with the highest part of the straw (likewise less than the grain) is called *urru*.[3]

[1] *Mutila*. Caesar describing elks calls them *mutilae cornibus*, and Columella (vii, 3, 3) speaks of a *mutilus aries*. In vii, 6, 4, he distinguishes between a *capella mutila* and one *cornuta*.

[2] *Gladium*. Neuter, of course. Cf. Varro, ll. ix, 49: *quod dicitur a multis duobus modis hic dupondius et hoc dupondium, ut* hoc gladium *et hic gladius*.

[3] *Frit* and *Urru*. About these two words no one appears to know anything. ὄρρος, or οὐρά = the tail or rump. The reading of the MSS. is, however, *urrucum* and then *conticuisset*, which may well have been *urrucum cum conticuisset*. *Urrucum* might be for *urruncum* (= *urruncum*), and *urruncum* stand for ὄρρογκον which means a "mountain top," *urruncum* being thus the top of the straw. *Frit* is connected by Pontadera with φρίττειν, to shiver, to bristle. All (mine included) profitless guess-work, I am afraid.

CHAPTER XLIX

THE HAY HARVEST

1 STOLO finished speaking, and thinking that as no further questions were asked, nothing more was needed on the subject of the nutrition of plants, he said that he would proceed to discuss the getting in of the ripe crops. And, firstly, said he, regarding meadows reserved for hay, when grass has ceased growing and the heat begins to dry it up, it should be cut close with the scythe, and then tossed with forks until thoroughly dry. When it is quite dry it should be made into bundles and then carted to the homestead. Then any hay left on the meadows must be raked up, and the heap thus made
2 added to the rest of the hay. That done, you must go over[1] the fields again, that is, cut with scythes whatever bits have been passed over by the mowers, leaving little tufts of grass on the surface. From this cutting (*secari*) I fancy that the word *sicilire* (to cut a second time) is derived.

[1] *Sicilienda prata.* Pliny (N. H., xviii, 28) defines the word in the same way: *hoc est quae faenisices* (*foeniseces*) *praeterierunt secari*, adding, *est enim in primis inutile enasci herbas sementaturas.*

CHAPTER L

OF REAPING

1 THE term harvest, *messis*, is properly applied to such things as we measure (*metimur*), especially to corn—and from that word (*metiri*) it is derived. The corn harvest is got in three ways; one, as in Umbria, where they cut the straw close to the ground and lay the sheaves as they are cut, on the
2 ground. When they have got a good number of sheaves, they go over them again, and sheaf by sheaf they cut off the ears from the straw. The ears are thrown into a basket and sent to the threshing floor, the straw is left on the field to be taken away and stacked. In the second method of reaping, used, for instance, in Picenum, they have a curved[1] piece of wood with a small iron saw at the end. This grasps a bundle of ears, cuts them off, and leaves the stalks standing in the field to be subsequently cut close to the ground. The third method —adopted near Rome and in most places—is to cut the stalk, the top of which is held by the left hand,

[1] *Incurvum bacillum.* Pliny (N. H., xviii, 30) describes a horse-drawn corn-mower which may be this referred to by Varro: *Valli praegrandes dentibus in margine infestis, duabus rotis per segetem impelluntur; iumento in contrarium iuncto: ita direptae in vallum cadunt spicae.* Palladius (June II) describes at greater length and more clearly a corn-cutter which was pushed by an ox.

mid-way, and I fancy that the word harvest (*messis*) is derived from the word middle (*medius*). That part of the stalk below the hand which adheres to the ground is afterwards cut close to the earth, while that part which is attached to the ear is carried
3 off in baskets to the threshing-floor; there it is separated in an uncovered place in full view (*palam*), whence perhaps its name *palea* (straw). Some people derive its name *stramentum* from *stare* (to stand) from which *stamen* is also derived; others from *stratum* (strewing), because it is strewn under cattle. When the crop is ripe it must be reaped; and in regard to this it is said that one man's work for a day is roughly enough for about a *iugerum*,[1] if the land be easy to work. The cut ears should be carried in baskets to the threshing-floor.

CHAPTER LI

THE THRESHING-FLOOR

1 THE threshing-floor should be on raised ground, that the wind may blow through it; it should be of a size proportionate to that of the crop; round for choice, with the centre swelling up a little, so that in case of rain the water may not stand, but may

[1] *In iugerum.* This seems irrelevant, and the remainder of the chapter a vain repetition of what was said immediately before.

flow down out of the threshing-floor by the shortest possible way, and in a circle a straight line from the centre to the edge is always the shortest; it should be of solid earth, well rammed down, especially if it is clay, lest the heat of summer crack[1] it, and grains of corn get lost in the fissures, letting in water and discovering holes for mice and ants. To prevent this people frequently drench it with *amurca*,[2] as the latter is poison to weeds, ants, and
2 moles. Some people, in order to keep it solid, strengthen the threshing-floor with stones or even pave it. Others, such as the Bagiennae,[3] even roof their threshing-floors to protect them from storms, which are frequent in their country at harvest time. When

[1] *Paeminosa.* Nonius Marcellus quotes this passage thus: *Paeminosum, mali odoris: a paedore dictum.* Varro de Re Rustica, lib. i: *Solida terra pavita, maxime si est argilla, ne situ paeminosa, in rimis eius grana oblitescant,* where it is to be noticed that Nonius gives to *paeminosa* the sense of "foul," and has *situ* (by neglect) instead of *aestu* (which Victorius found in his "most faithful and ancient manuscript").

Taking Nonius's reading the translation is "lest it become foul through neglect," etc.

The word *paeminosus* is not found elsewhere.

Keil's interpolation, *si sit*, seems unnecessary, for *paeminosa* (Ablative) with *area* understood is quite in Varro's distressing manner.

[2] *Amurca* (ἀμόργης) = the watery part of olives, distinct from the oil.

[3] *In Bagiennis.* These are probably Pliny's *Vagienni* (N. H., iii, 20), a branch of the Celtic Caturiges settled in the mountainous parts of Liguria, where sudden storms do still arise in summer time.

the threshing-floor is without a roof and the climate is hot, shelters should be built near it to which the workmen may repair in the broiling noon-tide heat.

CHAPTER LII

OF THRESHING

1 EARS of the finest and best crop should be taken to the threshing-floor and kept separate from the rest, so that the farmer may have the best possible seed. The ears are threshed on the threshing-floor. Some do this by means of yoked beasts and a threshing sleigh, which is made of a piece of wood roughened underneath with stones or iron, on which either the driver stands, or a large weight is placed. It is then drawn by the animals harnessed to it, and shakes the grains of corn from the ears. Or it is made of planks of wood furnished with teeth and little wheels, and is then called the "Punic wain." A man must sit on it and drive the animals which draw it, as is the practice in Hither Spain and other places.
2 With others the threshing is done by means of a herd of beasts which are driven on to the threshing-floor and are kept going by poles, the grains of corn are thus rubbed out of the ears by their hoofs. When the ears have been threshed they should be tossed up from the ground with winnowing baskets[1]

[1] *Vallis* for *vannulis*. The *vannus* was a kind of basket or sieve. Servius (ad Georg., i, 166, where he says Varro read

or winnowing shovels[1] when there is a gentle breeze blowing, so that the lighest part of them, called *acus* or *palea* (chaff), may be blown away outside the threshing-floor, while the heavy part, the grain, comes clean of chaff to the basket.

CHAPTER LIII

THE GLEANING

When the harvest is over, you should sell[2] the gleaning, or pull the stalks yourself; or else, if the ears be few and labour dear, they should be eaten down. For you must look to the main chance lest in this matter the cost exceed the return.

vallus) defines it as a *cribrum areale* a sieve used on the threshing-floor. It was used in the absence of wind (Columella, ii, 21).

[1] *Ventilabrum* was a winnowing shovel (πτύον) by which the corn was thrown up into the air across the wind. Winnowing seems to have been done in the same way in Homer's as in Varro's time. Cf. Iliad, v, 499.

[2] *Venire*. This is an instance of Varronian ambiguity. It may mean (1) to be sold, (2) to come.

CHAPTER LIV

OF WINE-MAKING

1 In the vineyards, when the grapes are ripe, you must proceed to the vintage, making up your mind first on the kind of grape and the part of the vineyard with which you intend to begin. For the quick-ripening and the common kind, called black, ripen a good deal earlier than the others and should therefore be gathered before them, and the sunnier part of the plantation and vineyard ought to come
2 down before other parts. During the vintage a good farmer not only gathers his bunches, he also selects them. He gathers for drinking, he selects for eating. Accordingly, those gathered are taken off to the wine-yard[1] to go thence into the empty cask; those selected are put into a separate basket to be transferred into small jars and then thrust into casks full of grape refuse; others to go down in a pitch-coated *amphora* into a tank, others to go up to a shelf in the larder. The stalks and skins of the grapes that have been trodden must be put under the press, that whatever "must" remains in them
3 may be squeezed out into the same vat. Some people, when the juice ceases to flow under the press, cut round the edge of the mass and press again, and what is squeezed out in the second operation is called *circumcisicium*. It is kept apart,

[1] *Forum vinarium*. Cf. Cato, xviii, 3.

for it tastes of iron. The skins of the grapes are thrown into casks and water is added to them. It is then called *lora*, an abbreviation for *lota acina* (watered grape-skins), and in winter is given instead of wine to the workmen.

CHAPTER LV

OLIVE PRODUCTS

1 We now come to the olive plantation. Such olives as you can reach with the hand from the ground or from ladders[1] are better pulled than shaken from the tree; for those which have been struck lose flesh and give less oil. Those which are picked by hand are better if gathered with the bare fingers, not with pincers, for the hardness of the latter not only
2 nips the berry but barks the branches as well, and leaves them unprotected against the frost. Those branches that cannot be reached by the hand should be beaten with a reed rather than a pole, for a heavy blow demands a doctor. The man who beats must
3 not strike the olive directly, for often an olive so struck carries a green shoot away with it from the branch, in which case the fruit of the next year is lost; and this is one of the chief reasons why they say that every other year olive plantations bear no fruit or a diminished crop.

[1] *Scalis.* The Geoponica (ix, 17) recommend *τρίγωνα ἀναβατήρια*—triangular steps.

4 The olives go home the same two ways as do grapes; some to be eaten, others to be turned into a liquid, a lubricant for the outside as well as for the inside of the owner's body. And so it follows him to the baths[1] and the gymnasium. The latter
5 kind of olives, from which oil is made, are generally piled up in heaps (one heap for each day), on shelves, to remain there until they become moderately soft, when they are taken down heap by heap in pails,[2] in the order in which they were laid down, to the oil vessels and presses. The latter are mill-stones of a hard and rough stone used for
6 crushing olives. If the olives gathered have remained too long in heaps they go soft through the heat, and the oil goes bad. And so if it should be impossible to make your oil in good time, you must air them by frequent stirring.

7 From the olive we get two products (1) the oil, with which everybody is familar, and (2) *amurca*, which (most people are unaware of its usefulness) we may see running from the oil-presses, not only blackening the earth, but, when there is much of it, rendering it barren: whereas this liquid, used in moderation, is of the greatest importance in farm-

[1] *Balneas*=public baths, *balneum* being a private bath—so Varro in the Lingua Latina.

[2] *Per serias.* I have translated the reading of the most ancient MS. as given by Victorius, viz., *per sena*, taking *sena* for *sina* ("pails," as *sinum lactis*, Columella, vii, 8, 2). Scaliger found always in Nonius *senum* not *sinum*, and the change of ĭ to ĕ in rustic Latin has already been noted.

ing, as well as in many other directions. It is commonly poured round the roots of trees, especially olive trees, and wherever there are weeds.

CHAPTER LVI

OF STORING HAY

SAID Agrius to Stolo: I have been sitting for a long time in the farm-house, waiting, key in hand, for you to bring the produce home. Stolo answered, Well, here I am, coming to the threshold; throw open the doors.

To begin with, hay is better stored beneath a roof than in stacks, for so it makes sweeter fodder. This is proved by the fact that if you set both before cattle they eat the one in preference to the other.

CHAPTER LVII

GRANARIES

1 WHEAT should be stored in granaries raised above the ground, wind-swept from the east and north, and safe against any damp breeze that may blow from the immediate neighbourhood. Walls and

floor must be coated with a marble cement[1]—failing
2 that with clay mixed with corn chaff and *amurca*. As[2] the latter keeps away mice and worms, and renders the grains of corn firmer and stronger, some people sprinkle the corn itself with it, adding about a *quadrantal* (seven gallons) to the thousand pecks. Different people, too, grate or sprinkle different substances on it, for example, Chalcidian or Carian chalk, or wormwood and the like.

3 Some people use as granaries underground caves, called *siros*, as is done in Cappadocia and Thrace, others wells, as in Hither Spain, and also in the Carthaginian and Oscan country. On the floor of these they spread straw, and are careful to prevent moisture or air from getting in, except when the corn is brought out for consumption. For where no air penetrates, there the weevil does not appear. Corn thus stored keeps for even fifty years, millet for more than a hundred.

Some people build granaries on the farm raised high above ground, in Hither Spain and Africa for instance, so constructed that the wind may cool

[1] *Marmorato.* Cement made of powdered white marble (*opus albarium*) was frequently used as a finishing coat for the inside walls of houses, etc. It was almost as hard as native marble. Pictures were often painted on it.

[2] *Quod murem.* Keil's punctuation here seems bad. The sense is much improved if a full stop is placed after *amurca*, and a comma instead of a full stop after *firmiora*—and so I have translated.

them not only by blowing through windows at the sides, but also by blowing from the ground upwards.

CHAPTER LVIII

OF STORING BEANS AND GRAPES

BEANS and other leguminous crops keep good for a very long time in olive jars when covered with a coating of ashes.

Cato says that the Aminnean grape—both the smaller and larger variety—and the Apician are best stored in jars, and that they likewise keep well in *sapa*[1] and "must," while the best for hanging are the *Duracinae*[2] and the Aminnean (Scantian).

[1] *Sapa* (= "must," unfermented wine) diminished in volume by boiling to $\frac{3}{4}$, $\frac{2}{3}$, or $\frac{1}{2}$ of its original bulk. Columella (xii, 19) describes the process at length, and says that the best *sapa* is that which has lost half its bulk. Pliny, however, calls this *defrutum* (N. H., xiv, 9).

The word is used unchanged in modern Italian; the saying *dolce come la sapa* being common in Florence.

[2] *Duracinas*. Schneider thinks this word is connected with *durare* (to keep). A pure guess, unsupported by evidence! The δωράκινον of the Geoponica seems from the description to be the apricot (Geop., x, 13, 1).

CHAPTER LIX

OF STORING APPLES

1 Of apples the kinds for keeping are the small[1] and the large quince, the Scantian apple, the Scaudian, the "small rounds" and those which used to be called "sweet-wines," and now go by the name of "honey-apples";[2] all keep well, it is thought, if laid on straw in a dry and cool place. And for this reason those who build storehouses for their fruit take care to put windows facing north, and to give free access to the wind from that quarter, adding, however, shutters, lest, if the wind blow persistently, the apples lose their juice and shrivel up.
2 And for the same reason—for greater coolness—they do over the ceilings, walls, and floor with marble cement. Some people even have a dining table and couches made ready here. And, indeed, when men are extravagant enough to do so in a picture gallery, where art provides the pageant, why should they not enjoy a gift of nature's providing, in the shape of the beauty of fruits beauti-

[1] *Mala struthea, cotonea.* Cf. Pliny (N. H., xi, 11), where these are described. The *struthea* was a smaller kind of *cotonea. Cotonea* (*mala*) was the Κυδώνια of the Greeks, our quinces (*cotogna* in modern Italian).

[2] *Melimela.* According to the Geoponica (x, 76) these were produced by grafting apple on quince.

fully arranged? Though we must assuredly not do as some have done—bring to the country fruit bought at Rome,[1] in order to turn a storeroom into a banqueting-hall.

3 Some people think that apples keep well enough in a storehouse when placed on shelves or a plaster floor; others prefer to have straw under them or even flocks of wool. Pomegranates keep well, it is said, if their branches are stuck into a cask full of sand; the greater and less quince[2] on hanging mats of reeds,[3] while, on the other hand, the ripe Anician pears are best preserved in *sapa*. Some consider that "sorb apples" cut in pieces and dried in the sun like pears keep well, and that this fruit can be kept without difficulty just as it is wherever it is put, provided the place be dry. Rape may be cut up and kept in mustard-seed, walnuts in sand,

[1] *Romae coempta.* Victorius quotes in illustration part of an epigram, the author of which he does not name.

Quaeque tibi posui tamquam vernacula poma
De Sacra nulli dixeris esse via.

(Don't tell anyone that my home-grown fruit was bought in the Sacra Via.)

[2] *Mala cotonea, struthea.* Keil has not the comma, which should be there. Cf. note 1, p. 112.

[3] *In pensilibus iunctis.* In despair I have translated *iuncis* instead of *iunctis*. Columella (x, 306) uses *iuncus* for a basket made of reeds. As the text stands one can only understand with *pensilibus*, *surculis*, and translate "on hanging branches joined together." Pliny (N. H., xv, 17) says that quinces should be shut up so that no breath of air may get to them; or should be preserved in honey.

pomegranates[1] also in sand, if put there when they have just been plucked and when ripe—even unripe ones, if you put them, still attached to the branch, into a pot without bottom, and sink them in the ground, then pitch round the branches to prevent the outside air from getting to them, are not only sound when taken up, but bigger than they would ever have been if left hanging on the tree.

CHAPTER LX

OLIVES FOR EATING

Of the fruit of the olive, Cato writes that eating olives—Orcites and P(a)useae—are best kept either green in brine, or, after being well bruised, in mastic oil. He adds that if the Orcites, when black and dry, be well rubbed with salt for five days, and you then shake off the salt and leave them in the sun for two days, they remain as a rule in good condition, and that they may also be put without disadvantage unsalted into new wine boiled down to half its bulk.

[1] *Punica mala*, etc. Pliny (N. H., xv, 17) writes: "M. Varro recommends that they be kept in tubs of sand, or else be buried unripe in the ground—in jars of which the bottoms have been knocked out; but you must keep the air out and the branch must be smeared with pitch. They then grow to a greater size than they can on the tree."

CHAPTER LXI

OF AMURCA

GOOD farmers store *amurca* in casks just as carefully as they do oil or wine. The method of storing is as follows: As soon as ever it has been squeezed out by the press, two-thirds of it are boiled away, and what remains is put when it has cooled into vessels. There are also other methods of storing, as, for example, that in which "must" is added.

CHAPTER LXII

KEEPING AND CONSUMING

As no one stores up produce save with the intention of bringing it out again, I must also give a few words to this subject, which constitutes the sixth phase. People bring out what they have stored, either for its preservation, or for consumption, or for sale. Now as these objects are unlike, different times must be chosen for preserving and consuming different kinds of produce.

CHAPTER LXIII

ON BRINGING CORN OUT OF STORE

For its preservation: that corn must be brought out which weevils are beginning to eat. When it has been got out, pans of water must be placed in the sun, as the weevils crowd to them and commit suicide.

Those who keep their corn in those underground chambers called *siros* must get it out some considerable time after opening, as it is dangerous to enter them when newly opened—so much so that people have been suffocated. Spelt that you have stored in the ear during summer, and wish to prepare for food, must be taken out in winter time to be pounded in the mill and roasted.

CHAPTER LXIV

PREPARATION OF AMURCA

Amurca, which is a watery fluid, mixed with impurities, after being pressed from the olive and put into an earthenware jar, is commonly kept in the following way: in fifteen days' time the lightest part, the scum, is blown off from it, and put into other vessels, and this is repeated with the same intervals of fifteen days twelve times for the next six months—and when this operation is performed for the last time, they prefer to decant when the

moon is on the wane. Then they boil it down in cauldrons over a slow fire, until it is reduced to two-thirds of its original volume, and then only may it be brought out to be used.

CHAPTER LXV

OF WINE

THE "must" put into the cask to become wine, should not be brought out while it is fermenting—nor even when it has actually become wine, if you want to drink it old—and it does not become old before a year has been added to its age. When it is a year old it is brought out for consumption. If it belongs, however, to the class of grape which quickly turns acid, you must consume or sell it before the next vintage. There are some kinds of wine—the Falernian amongst them—which are the more valuable when you bring them out, the more years you keep them in the cellar.

CHAPTER LXVI

OF WHITE OLIVES

WHITE olives which have been stored, if brought out too soon when fresh, are nauseous owing to their bitterness, as also are the black ones unless they are rendered palatable by being first steeped in salt.

CHAPTER LXVII

WALNUTS, DATES, AND FIGS

As for the walnut, the date, and the Sabine fig, the quicker you bring them out the better the flavour, for age makes the fig paler, the date rotten, and the nut too dry.

CHAPTER LXVIII

HUNG FRUIT

FRUITS that are hung, such as grapes, apples, and sorbs, show of themselves when they should be consumed, as by the change of colour and the shrivelling of the berries they let you know that they will come down to be thrown away if you do not take them away to be eaten. Ripe sorbs which have been stored when soft must be used pretty quickly—those which have been hung when sour may wait longer, as before mellowing they want to attain in the house the maturity which they cannot hope to reach on a tree.

CHAPTER LXIX

ON PRODUCE FOR MARKET

1 Of the spelt which has been mown, that which you wish to be prepared for food should be brought out in the winter to be roasted in the bakery. Such of it as you want sown should be brought out when the fields are ready to receive it. So, in general, the various kinds of corn to be sown must be got out at their proper times. As for the things which are for market you must note the proper time for each, for some things—those that will not keep—you must bring out and sell quickly before they spoil, others, which will keep, you must sell when they fetch a good price. For it often happens that what you keep back for some time not only gives you interest on your outlay, but even doubles your profit if you bring it out at the right moment.

[1] *Far* (ζεία, spelt, French *épeautre*) a poor kind of wheat which, however, grows well on poor soils. It was the principal food—eaten in the form of porridge—of the ancient Romans. The words *farina* (flour), *confarreatio*, and *diffarreatio* (patrician forms of marriage and divorce) were derived from it. It was much used in sacrifices—to Ceres, Tellus, etc.

Like barley, it was roasted first and then pounded in a wooden mortar (Cf. Pliny, N. H., xviii, 11): twice—the first time to remove the husk, the second to reduce the grain to flour.

Pliny tells us in the same chapter that only those who "pounded" *far* were called bakers; and that there were no bakers by trade in Rome before the Persian war—580 years after the foundation of the city (*i.e.*, 174 B.C.).

2 As Stolo was saying this, the freedman of the temple-guardian came up to us weeping, and begged us to forgive him for having kept us waiting, and asked us to go to his[1] funeral the next day. We all started up and cried out with one voice: What? To the funeral? What funeral? What has happened? With tears in his eyes he told us that his master had been stabbed with a knife by somebody, and had fallen to the ground. "I was not able," he said, "to notice in the crowd who it was. I only heard clearly a voice saying, 'I have made a
3 mistake.' I took him home and sent slaves to find a doctor and bring him as soon as possible. And I think, gentlemen, I may be pardoned for having done what I did instead of coming to you. And though I couldn't prevent my old master from breathing his last soon after, I do still think I did my duty." We told him he was quite right, and walking down the temple-steps went our separate ways, feeling more sorrow for human mischance than wonder that such a thing had happened in Rome.

[1] *Ei.* I have kept in the translation the ambiguity of the text. *Ei* cannot, of course, in any way refer to the speaker.

The freedman in his agitation said: "please come to *his* funeral," forgetting that he had not mentioned his old master.

BOOK II

CONCERNING CATTLE

INTRODUCTION

1 GOOD reason had our great ancestors for setting the Romans of the country above those of the town. For, just as in the country those who live and work inside the farmhouse are of slacker fibre than those who work on the land, so those who led the sedentary life of a town were accounted by our ancestors a feebler folk than those who tilled the fields. Accordingly, in dividing their year they arranged for the transaction of city business every ninth day only,[1] giving the remaining seven days of each
2 "week" to the cultivation of the fields. And as long as they maintained this custom two ends

[1] *Nonis modo diebus.* We should say every eighth day. The Roman reckoning was inclusive of the first and last day of any period of time. Thus *nudius tertius* for the day before yesterday, etc. This method of counting has persisted amongst the Latin races to some extent; cf. the French and Italian for a fortnight, *quinze jours* and *quindici giorni.* Varro alludes to the *nundinae* (*novem dinae*) or market-day, which was the last day of the eight-day week. On it the country folk ceased work in the fields, and came to Rome to buy or sell in the market, and to hear public announcements; especially with regard to *comitia* and the business to be conducted at them.

were achieved: by cultivation they made[1] and kept their lands most productive, while they themselves enjoyed a lustier health, and might dispense with the town gymnasia of the Greeks. Whereas nowadays men are hardly satisfied with one gymnasium apiece, and do not consider that they possess a country house unless it is dignified by a lot of Greek names,[2] which they give to its several parts, such as *procoeton* (antechamber), *palaestra* (room for exercise), *apodyterium* (undressing-room), *peristylos* (colonnade), *ornithon* (poultry-yard), *peristeron* (dove-cote), *oporothece* (store-house for fruit).

3 And now that nearly all heads of families have deserted scythe and plough, and sneaked within the city walls, preferring to keep their hands astir in theatre and circus rather than amidst corn-crops and vineyards, we contract[3] with people to bring us

[1] *Ut haberent . . . ac ne.* Perhaps both better translated as "final" conjunctions—though Cicero writes (De Finibus, bk. ii): *Ex quo efficitur non ut voluptas* ne *sit voluptas sed ut voluptas* non *sit summum bonum.*

[2] *Retineant.* I can find no parallel to the use of *retinere* here. Auc., Ad Herennium, iii, 3, has *retinere fortitudinem* in the sense of *conservare*, to keep up. Gesner conjectures ingeniously *retinniat.* If this be adopted the passage means: "do not think they have a country-house unless it 'tinkles' with a lot of Greek names, etc."

[3] *Frumentum locamus.* Columella in the preface to his work on farming paraphrases most of this introduction—and this passage thus: "And so in this Latium, in this land of the good god Saturn, where the gods taught agriculture to their offspring, we have now, lest we starve, to contract for corn to be

the corn, whereby we may grow fat, from Africa and Sardinia, and get in the vintage by ship from
4 the islands of Cos or Chios. And so in that country where the city's founders were shepherds and taught agriculture to their descendants, these descendants have reversed the process, and, through covetousness and in despite of laws, have turned corn-land into meadow, not knowing the difference between agriculture and grazing. For a shepherd is a different thing from a ploughman, and if herds of cattle can and do graze on the land, a cattle drover is not therefore the same as a teamster. For grazing cattle do not help to produce what grows on the land, they remove it with their teeth; whereas the domestic ox makes the corn grow better in the corn-land, and fodder in the fallow land.

5 Different, I repeat, is the method, the science, of the farmer from that of the shepherd—the farmer's province being such things as are made by means of agriculture to spring from the ground, the shepherd's those that spring from the flock. But, as the two are intimately connected, and seeing that as a rule it pays the owner better to have the fodder eaten on his farm than to sell it, and manuring is excellent for the fruits of the earth—for which purpose cattle are most suitable—therefore the man who owns an estate should adopt both systems, agriculture and pasture-farming, and even the rearing of animals within the precincts of the farm-

brought us from the provinces across the sea, and get our vintages in from the Cyclades, Baetica, and Gaul."

house, for from this latter also considerable profits can be made. I mean from poultry-yards, hare-
6 warrens, and fish-ponds. And seeing that I have written a book on the first of these,[1] namely, agriculture, for the benefit of my wife Fundania who has bought a farm, I write this short treatise on the essentials of cattle raising for you, my friend Turranius Niger,[2] since you take so keen a delight in cattle, if one may judge from the frequency with which your feet bear you, on cattle-buying bent, to the market at Campi Macri, with the object of thus helping to provide for expenses which make many demands on your purse. This I shall be able to do without difficulty, having myself kept large flocks of sheep in Apulia, and of horses in the country about Reate. What I write will be drawn from conversations that I had with the owners of large flocks in Epirus, when I was in command of the

[1] *E quis quoniam.* The whole three books were written for Fundania (cf. i, 1, 4), so that it is curious that this book is dedicated to Turranius Niger, and the third to Q. Pinnius (iii, 1, 10). It may be that the first book was published some time before the others, and that Varro forgot when he dedicated the latter to the two men mentioned that he had already promised the three to his wife. Nonius Marcellus quotes forty-two passages from the first book, none from the second or third.

[2] *Turranius Niger.* Nothing is known of him. Cicero mentions a D. Turranius (Ad Att., i, 6) whom he calls *hominem* χρηστομαθῆ.

The name Turranius (spelt also Turannius) seems connected with *taurus* (*turu* = *taurus* in Umbrian), and cattle are the subject of this book.

Greek fleets between Delos and Sicily at the time of the war against the pirates.[1] I will here begin.

Here we left off.[2]

CHAPTER I

CATTLE-FARMING: ITS ORIGIN, REPUTE, AND PRACTICE

1 On the departure of Menates, Cossinius[3] turned to me and said: We shall not let *you* go until you have finished your exposition of those three matters—you

[1] *Piratico bello*, waged by Pompey in 67 B.C. Varro gained a *corona rostrata* (Pliny, N. H., xvi, 4): *M. Varrone e piraticis bellis dante Magno Pompeio.*

[2] *Hic intermisimus.* These words, found in the archetype in capital letters, immediately after *incipiam hinc*, are no doubt the words of the copyists who had been in turn copying a manuscript of this work. They seem mildly facetious. "I will begin here," said Varro. "Here we left off," said they. Was it because, one wonders, the MS. was illegible at this place, for it is obvious that much has been omitted between *incipiam hinc* and *cum Menates?* Did they give up in despair here and go on copying further on, when the MS. was moderately legible—though imperfectly so, for we have trouble a few lines later with *cum poetam sesum*, etc.?

It seems, at any rate, absurd to suppose with Lachmann that the words are Varro's, who attempts to out-Homer Homer.

[3] *Cossinius.* Cicero in two consecutive letters to Atticus (Ad Att., i, 20, and ii, 1) mentions a L. Cossinius, to whom he had sent a book written in Greek about his (Cicero's) consul-

remember—on which you were recently beginning to speak when we were interrupted. What three matters? asked Murrius; do you mean what you told me yesterday about cattle-raising? Precisely, answered Cossinius: I mean the discourse which our friend Varro here was beginning, on the origin, dignity, and art of cattle-raising (we had come to see Paetus,[1] who was not very well), only the arrival of the doctor prevented our further discussion.

2 For my part, said I, I consent to treat the historical part only, to say what I know about the first two parts, namely, the origin of the art and its dignity. The third, the practical part, Scrofa[2] must take in hand. For Scrofa, ὅς πέρ μου πολλὸν ἀμείνων ("who is a much better man than I")—I say it in Greek to two half-Greek shepherds—is the man who taught C. Lucilius Hirrus, your son-in-law,

ship. A few lines further (i, 20) he mentions a L. Papirius Paetus who was an Epicurean and a man of much wit and learning. To him were written twelve of Cicero's letters (Ad Fam., ix, 15-26).

[1] *Cum poetam sesum.* This passage is manifestly corrupt. *Sesum* may be for *fesum* (i.e., *fessum*) in the sense of *ill* (Ursinus) and *poetam* for *paetum.* The passage would then read: *Cum Poetum fessum visere venissemus.* For *visere venissemus* cf. Plautus (Rudens, 94), *nunc huc ad Veneris fanum venio visere.*

[2] *Scrofa* (*Tremellius*) constantly quoted by Columella as a great authority. Columella (i, 1, 12) says that "Cato first taught Agriculture to speak Latin, the two Sasernae continued her education, Tremellius Scrofa made her eloquent, Varro gave her polish (!), and Virgil made a poet of her."

whose flocks in the country of the Bruttii are accounted so famous.

But, said Scrofa, you shall have what we can give only on the condition that you, who are Epirots and therefore are great men at cattle-raising, repay us by bringing what you know to the common stock. For no one can know everything.

3 When I had received the assent of the company to the first two parts (only) being mine—not but what I too possess flocks in Italy, but the harp does not make the harper—I began.

Well, gentlemen, as from the nature of things men and sheep must always have existed—for whether we suppose that there was an original generating principle for animals, which was the opinion of Thales of Miletus[1] and Zeno of Citium,[2] or on the other hand that animals had no beginning at all, as Pythagoras of Samos[3] and Aris-

[1] *Thales Milesius.* Water to wit: cf. Plutarch (Plac. Phil., i, 3): *στοχάζεται δ' ἐκ τούτου πρῶτον ὅτι πάντων τῶν ζῴων ἡ γονὴ ἀρχή ἐστιν ὑγρὰ οὖσα.*

[2] *Zeno Citieus* (borrowing from Heracleitus) made fire the ultimate physical principle; cf. Diogenes Laertius, vii, 156: *δοκεῖ δ' αὐτοῖς τὴν μὲν φύσιν εἶναι πῦρ τεχνικὸν ὁδῷ βαδίζον εἰς γένεσιν.* Cf. Cicero, N. D., ii, 41: *Quare cum solis ignis similis eorum ignium sit qui sunt in corporibus animantium*, etc., and Varro (L. L., v, 10): *Sive ut Zeno Citieus animalium semen ignis.*

[3] *Pythagoras Samius.* Varro alludes perhaps to the incessant transmigration of souls. Cf. Porphyrius, Vita Pythag., 19: *πρῶτον μὲν ὡς ἀθάνατον εἶναί φησι τὴν ψυχήν εἶτα μεταβάλλουσαν εἰς ἄλλα γένη ζῴων . . . νέον δ' οὐδὲν ἁπλῶς ἐστι.*

totle of Stagyra[1] believed, human life must have come down from the highest antiquity to our time, stage by stage, as Dicaearchus writes, and the remotest stage must have been the state of Nature when man lived on those things which the virgin
4 earth produced spontaneously. Then from this mode of life they must have descended to the second mode, the pastoral, in which, by plucking from wild and woodland trees and shrubs acorns, arbutus berries, and mulberries, they made a store of fruit for subsequent use, and in the same way and for the same end captured such wild animals as they could and shut them up and tamed them. There is reason to believe that amongst these animals sheep were the first adopted, on account of their usefulness and gentle nature, for they are by nature extremely gentle and especially fitted for association with man's life, for through them milk and cheese were added to his food, and for his body they furnished clothing in the shape of skins.

5 Finally, with the third stage, they reached, from the pastoral mode of life, the agricultural, retaining in it much of the two former stages, and went on long in the stage which they had reached before they could attain[2] our present civilization. Even

[1] *Aristotle.* Cf. Phys., ii, 1, 192: *τῶν ὄντων τὰ μέν ἐστι φύσει, τὰ δὲ δι' ἄλλας αἰτίας, φύσει μὲν τά τε ζῷα καὶ τὰ μέρη αὐτῶν καὶ τὰ φυτά.*" They exist, therefore, by *φύσις*—the eternal *ἀρχὴ κινήσεως.*

[2] *Dum ad nos perveniret.* This impersonal use of the active verb—normal with the passive verb—is common with Varro. Cf. i, 44, 1; i, 23, 3, etc.

now in many places there are several kinds of wild animals; there are sheep, for instance, in Phrygia, where many flocks are to be seen, and in Samothrace there are wild she-goats of the kind called in Latin *rotae*.[1] For many exist in the neighbourhood of Mount Fiscellum[2] and Mount Tetrica.[3] Everybody knows about wild pigs—except the man who thinks that wild boars are not properly called pigs. At the present day quite wild bulls are found in Dardania, Maedica and Thrace, wild asses in Phrygia and Lycaonia, and wild horses in Hither Spain, in some districts.

6 The origin of the art is as I have stated; its high repute I proceed to show. Amongst the ancients the most famous men were all shepherds, as is evident from both the Latin and Greek languages, and from the old poets who call some of their heroes *polyarnae*, others *polymeloi*, and others *polybutae*, and to express their costliness they stated that the sheep had actually golden fleeces, like the one at Argos which, Atreus complains, had been stolen

[1] *Rotas*. Scaliger conjectures (p. 233) *platycerotas* from Pliny (N. H., xi, 37). *Platyce rotas* might easily be corrupted by the unintelligent copyist into *Latine rotas* two words which he understood. Schneider's conjecture, *strepsicerotas*, does not account for the word *Latine*.

[2] *Fiscellum*, near Soracte.

[3] *Tetrica*, in Northern Italy, on the borders of the Picentine country.

from him by Thyestes,[1] or like the ram in Colchis in the possession of Aeetes, in quest of whose fleece went the Argonauts of kingly race, so runs the story; or like the golden *mala*,[2] that is, in the ancient manner of speech, goats and sheep which were in the garden of the Hesperides in Libya, and were brought thence from Africa to Greece by
7 Hercules. For the Greeks called these animals *mela* from the sound they utter, while our fellow countrymen to express the same sound use much the same word, changing only the initial letter, (for the sound which sheep make seems to be rather *be*[3] than *me*), and speak of sheep when they bleat as making the sound *be*, *bealare*: and this word *bealare* becomes *balare* by the excision of a letter, as happens in many cases. Again, if sheep and goats, etc., had not been highly esteemed amongst the ancients, then astrologers in mapping out the heavens would not have given their names to constellations; and this they not only did without hesitation, but many of them even, in their enumeration of the

[1] *Thyestem subduxe.* Pacuvius, quoted by Cicero (N. D., iii, 27):

Agnum ínter pecudes aúrea clarúm coma
Quem clám (v.l., *quondam*) *Thyestem clépere ausum ést e régia.*

[2] *Aurea mala,* "the golden apples" of the Hesperides; but as μῆλα = either *mala* or *oves*, Varro gives it the latter sense of "sheep."

[3] *Sed be sonare videntur.* Cf. Cratinus (Dion., 5): ὁ δ' ἠλίθιος ὥσπερ πρόβατον βῆ βῆ λέγων βαδίζει.

twelve signs of the Zodiac, actually begin with them, with the Ram and the Bull that is, placing them before Apollo and Hercules. For these latter, gods though they are, follow them, though these
8 signs are called (by some) *Gemini*[1] (twins). And not content that a sixth of the twelve signs should bear the names of cattle, they added Capricorn to make up the quarter. Of domestic animals they also added the goat, kids, and dogs.

And are not many tracts of both sea and land distinguished by these names—the Aegean Sea,[2] for instance (which owes its name to goats), Mount Taurus in Syria, Mount Cantherius[3] in the land of the Sabines, and the Thracian and Cimmerian Bos-
9 porus?[4] And are there not many places on land with these names, such as the town in Greece called "Hippios (horse-rearing) Argos"? Finally is not the word Italy derived from *vituli* (bullocks) as Piso states? Again, who denies that the Roman people sprang from shepherds? who but knows that Faus-

[1] *Gemini* are the Dioscuri, Castor and Pollux, so that *ii dei* cannot be the subject of *appellantur* but *ea signa*. This is a good example of one of Varro's worst habits; cf. ii, 3, 6; ii, 4, 19; iii, 9, 2. Apollo and Diana were sometimes called *Gemini*. Varro, L. L., vii (*sub fin.*), quoting Manilius:

> "*Latona pariit casta complexu Iovis*
> *Delia Deos Geminos.*

id est Apollinem et Dianam."

[2] *Aegaeum.* αἴγειος, from αἴξ, a goat.

[3] *Cantherius* = a gelding.

[4] *Bosporus.* βόσπορος = Ox-ford.

tulus, who was the foster-father of Romulus and Remus, and brought them up, was a shepherd? Will it not be obvious that they were themselves shepherds, if we consider that they chose, as the time to found their city, a shepherd-festival (the Parilia)?[1] Is not the same thing proved by the fact that a fine[2] is even nowadays estimated, when the ancient custom is followed, in terms of sheep and oxen; that the most ancient copper coinage[3] is stamped with the figure of an ox; that when the
10 city was founded the position of the walls and gates[4] was marked out by a bull and cow, that when the Roman people is purified by the *Suovitaurilia*, a

[1] *Parilibus.* 21st April. Varro, L. L., vi, 3, calls the festival *Palilia—Palilia dicta a Pale quod ei feriae.* Cicero generally writes *Parilia.* For a full and interesting account of this festival cf. Ovid, Fasti, iv, 721-82.

[2] *Multa.* Cf. Pliny, N. H., xviii, 3; Aulus Gellius, xi, 1; Servius (ad Georg., iii, 387), where it appears that one murder cost a ram in the time of the kings!

[3] *Aes antiquissimum.* The *as* of Servius Tullius, cf. Pliny (xviii, 3): *Servius rex ovium boumque effigie primus aes signavit.*

[4] *Qua essent muri.* Cf. Servius (Aeneid, v, 755): "Which Cato in his Origins says was the way. For the founders of a city yoked a bull and cow together—the bull to the right the cow on the inside—and . . . held the plough-handle inclined so that all the clods fell on the inside. And thus, by the furrow traced, they marked the position of the walls; lifting the plough at the places where gates were to be."

Varro, L. L., v, 32: *Oppida condebant in Latio Etrusco ritu multi, id est iunctis bobus, tauro et vacca interiore aratro circumagebant sulcum.*

boar, a ram, and a bull are driven round the city; and finally, that we have many Roman names derived from both kinds of cattle, the larger and the less? From the less, Porcius, Ovinius, Caprilius, and similarly from the larger, Equitius, Taurius, Asinius. The same point is further illustrated by the use of the names of cattle as *cognomina*, in the case of the families the Anni Caprae,[1] the Statili Tauri, the Pomponi Vituli, and many others who get their names from cattle.

11 There remains for discussion the theory and practice of cattle-grazing; and Scrofa, to whom our generation assigns the palm in every department of agriculture, will discuss it, as he is better qualified than the rest of us.

Here everybody looked at Scrofa, and he began, Well, gentlemen, it is a science which is concerned with the acquiring and feeding of cattle to the end that the greatest possible profit may be made from it—from those animals to which money (*pecunia*) itself owes its name. For cattle are the origin of all money.

12 This science has nine parts—three separate sets of three—the subject matter of one part being the smaller cattle, of which there are three kinds—sheep, goats, pigs; that of the second the large cattle,

[1] *Anni Caprae.* Cf. Plutarch, Quaestiones Romanae (about the middle): *διὸ καὶ τῶν ὀνομάτων πολλὰ τοῖς παλαιοῖς συνέλλιοι καὶ βουβολκοὶ καὶ πόρκιοι ἦσαν ὡς φαινεστέλλας* (Fenestella) *εἴρηκεν.*

which nature has divided also into three classes—oxen, asses, horses. The third part of the science has to do with those animals which in stock-raising are not acquired for the sake of direct profit, but which are either aids to stock-raising, or result from it, as mules, dogs, shepherds. Again, each one of these parts contains in it at least nine sub-sections of general application; four of which are needed in the buying of cattle, other four in their feeding, and there is one besides which concerns both. This makes in all eighty-one parts at the least, which are moreover indispensable and of the greatest importance.

13 In the first place, to get a good flock or herd, you must know the best age at which to buy each kind of animal, and how long to keep it. For example, in the case of a herd of cows, a yearling and a cow above ten years old cost less to buy, as a cow begins to bear at two or three years old, and does not continue much longer than the tenth year. For in the first and last years of life every beast is sterile.

14 The second of the four sections consists in the knowledge of the "points" of each kind of animal (its shape,[1] colour, etc.), as these are of great importance where profit is the end in view. For example, a man would rather buy a cow with black

[1] *Forma.* Not of course "shape" alone, but all the other qualities also which constitute the ideal type—the Aristotelian εἶδος. Cicero frequently uses the word as a translation of the Platonic ἰδέα.

than one with white horns, a big she-goat in preference to a small one, and pigs with long bodies but small heads.

The third section deals with the question of breed. In this respect, for instance, the asses from Arcadia in Greece have become famous, and in Italy those from Reate—so much so that within my recollection an ass has sold for 60,000 sesterces (£480), and a single team of four fetched at Rome 400,000[1] sesterces (£3,200).

15 The fourth section deals with the acquisition of stock in its legal aspect, with the formalities prescribed by the Civil Law for the buying of each kind of animal, since before that which belongs to another can become mine, some intermediate process is required—and there are cases where the agreement to sell at a given price and the payment of the money do not constitute a change of ownership. When buying you must sometimes have the animal warranted sound, sometimes the flock or herd from which it comes, at other times neither guarantee is required.

16 The second four sections which must be borne in mind after the buying is done, are concerned with the grazing, breeding, rearing, and health of the flock or herd. In regard to the first of these—the grazing—three matters have to be considered, namely: (1) the district to be selected for the graz-

[1] *Quadringentis milibus.* Cf. iii, 2, 7; and Pliny (N. H., viii, 43), who says that perhaps this is the greatest price ever paid for an animal.

ing of each particular kind of animal; (2) the time; and (3) the method; as an example: goats are taken to graze in a mountainous bush-covered country, rather than on grassy plains; mares not so. Again, it does not suit all animals to feed in the same district both in winter and summer. So people drive flocks of sheep a considerable distance from Apulia, to spend the summer in Samnium (they must register their names with the tax-farmer, lest, by grazing an unregistered[1] flock, they incur the
17 penalties of the censor's law[2]). And mules are in summer driven from the plain of Rosea to the high mountains of Burbur.[3]

Then you have to consider just the right method of feeding each kind of cattle, for not only does a mare or a cow grow fat on hay, while pigs shun it

[1] *Inscriptum pecus.* On the meadow land of the *ager publicus* every citizen had the right to graze his cattle after first registering his name before the *mancep* or *publicanus*, and paying the registration tax. This was called the *scriptura*, which owed its name, according to Festus, to the fact that *publicanus* scribendo *conficit rationem cum pastore.*

[2] *Lege censoria.* This refers to the *censoria locatio*, where the censor put up to auction the collection of certain *vectigalia.* The highest bidder—individual or syndicate (*societas*)—gave security for the amount bid, and proceeded to collect what he could. The *lex censoria* defined the conditions of the *locatio*, and gave the *publicanus* the legal authority by which he enforced payment.

From the first book (cap. 7) it would appear that cases were tried before the censor, such probably as were connected with the up-keep of the temples, public buildings, and roads.

[3] *In Burbures* (or *Gurgures*). Nothing is known of these

to seek acorns, but barley[1] and beans may occasionally have to be given to some animals, lupines to cows, and lucerne and clover to the latter when they are suckling their young. You must remember also that for thirty days before they are used for breeding, rams and bulls are given more food in order to maintain their strength, while cows are given less, because it is said they conceive more readily when they are thin.

18 The second section has to do with gestation—and here I define "gestation" as lasting from conception to birth, for these are respectively the beginning and end of pregnancy. So we must first consider the time when the males of each species should be admitted to the females. Now for swine the best time is thought to be from Favonius[2] to the vernal equinox; for sheep between the setting of Arcturus and the setting of Aquila.

Again, we must consider how long, before admission, the males should be kept separate from the females. This is done in almost all cases for a couple of months before, by both neatherds and shepherds.

19 The second division (of this second section) tells

mountains, and no emendation at all plausible has been proposed.

[1] *Hordeum et faba . . . obiciendum.* This seems quite impossible in any Latin (*pace* Keil). Surely *fabam*, and further on *medicam*, as suggested by Ursinus, must be read. The construction is then the normal one for Varro. The corruption from *medicā* to *medica*, *fabā* to *faba*, is easy.

[2] *A favonio.* Cf. i, 29.

us what to keep in mind when pregnancy has begun, for different animals bring forth at different times. For instance, a mare is pregnant for twelve months, a cow for ten, sheep and goats respectively for five, and pigs for four months.

Speaking of pregnancy, let me tell you something which happens in Spain; no one will believe it, but it is none the less true. In Lusitania, near the ocean, in that stretch of country where is the town Olisipo,[1] certain mares on Mount Tagrus[2] conceive at a certain time of the year by means of

[1] *Olisipo*, now Lisbon. Pliny (N. H., iv, 22) calls it: *municipium civium Romanorum, Felicitas Julia cognominatum.*

[2] *Monte Tagro.* Columella (vi, 27, 7): *Cum sit notissimum etiam in* SACRO *monte Hispaniae qui procurrit in occidentem iuxta Oceanum, frequenter equas sine coitu ventrem pertulisse, foetumque educasse, qui tamen inutilis est, quod triennio, prius quam adolescat, morte absumitur.*

Pomponius Mela (iii, 1) mentions three promontories (1) Cuneus, (2) Sacrum (Cape St. Vincent), and (3) Magnum, and he places Ulysippo on the last, near the mouth of the Tagus.

Pliny (N. H., iv, 22) writes: *Oppida memorabilia: a Tago in ora, Olysippo equarum e favonio vento conceptu nobile. . . .* And again (viii, 42): *Constat in Lusitania circa Olysiponem oppidum et Tagum Amnem . . .*; and goes on to relate Varro's story.

It has been proposed therefore to read (1) on Columella's authority *Monte Sacro* (now Sagres), which is obviously wrong, as the Sacrum Promontorium is several hundred miles from Lisbon, (2) *Amne Tago*, and (3) *Monte Artabro.* Solinus Polyhistor (cap. xxvi) calls the Promontorium Artabrum *Ulysipponense*, so that the last conjecture seems the most plausible. But then how account for the *Monte Tagro* of the text?

the wind, just as hens frequently do with us, the eggs of which we call "wind-eggs."[1] The foals, however, born of these mares do not live longer than three years.

See to it that the young which are born at full term or after have a clean and soft place to stand upon, and that they be not trampled under foot. Those lambs are called *cordi* which are born after the regular time, having remained in the internal membrane, which is called *chorion*,[2] whence the name *cordi*.

20 The third section deals with the knowledge necessary in rearing animals, and tells you, in respect of this, for how many days the young should be suckled by the mother, and the time when, and place where, this is to be done. It instructs you, if the mother has not milk enough, to put them to the breast of another mother. Those with whom this is done are called *subrumi*, for *rumis*[3] was, I imagine, the ancient word for "breast."

[1] *Hypenemia*, ὑπήνεμα (Aristotle, Hist. A., v, 1). Pliny (N. H., x, 60) calls them *irrita*, and says that they are sterile, small, of poorer flavour, and more watery than good eggs.

[2] *Chorion*. Keil thinks that several words have here dropped out from the text; the literal translation of which, as it stands, is of course: "That from which they get the name of *cordi* is called the *chorion*"—which was probably all the explanation Varro meant to give.

[3] *Rumis*. Cf. ii, 11, 5, and Pliny (N. H., xv, 18): *lupa infantibus praebens rumen* (*ita vocabant mammam*), and Varro (Ant. R. D. Agahd., p. 170): *quia rumam dixerunt veteres mammam* (from Aug., De Civ. Dei, iv, 11). The goddess who looked after the suckling of children was called Rumina, and the fig-

Lambs as a rule are not weaned until four months old, kids until three, pigs until two. Of the last-named those which are without blemish, and fit for sacrifice, were once called *sacres*, a word employed by Plautus in the phrase, "What price are *porci sacres?*"[1] Similarly fat beasts, fattened for public sacrifices, are called *opimi*.

21 The fourth section deals with the health of the stock. It is of wide extent and must be taken into serious account, for an unhealthy flock is very vulnerable, and owing to its weakness often suffers great disaster from disease.

Now, of this science (of health) there are two branches, as in the case of men, one concerned with such things as need the attendance of a doctor, the other with those which even a shepherd who takes pains may treat. It has three divisions, for you must note (1) what is the cause of each particular ailment; (2) what are the characteristic symptoms of those causes, and (3) what is the treatment which each disease requires.

22 In general what causes most diseases will be

tree near the Palatine under which the twins were suckled was called *ficus Ruminalis*.

[1] *Porci sacres*. The passage referred to by Varro is Plaut., Menaechm., ii, 2, 15:

> *Adoléscens quibus hic prétiis porci véneunt*
> *Sacrés, sinceri? Númmo. Eum a me áccipe*
> *Iube te piari de mea pecunia.*

Sacri and *sacres* are parallel, like *hilari* and *hilares*, *epuloni* and *epulones*, etc.

found to be sickness induced by heat or by chills, or again, by too much work or by the opposite extreme, lack of exercise, or by giving food or drink immediately after exercise.

The symptoms are: in case of a fever which is the result of overwork an open mouth, rapid and moist breath, and a hot body; the treatment when
23 this is the case is as follows: the animal is bathed all over with water, and thoroughly rubbed with a mixture of tepid oil and wine, its strength is kept up by food, and some wrapping is thrown over it to prevent it from taking cold. If it is thirsty, lukewarm water is given. If nothing is gained by this method of treatment, the animal is bled—preferably from the head.

Again, different diseases have different causes and different symptoms, and of these, in the case of every flock or herd, the man to whose care it is committed should have a written record.

24 There remains now the ninth division mentioned before, which is concerned with number, and is common to each of the two parts. For he who buys stock must fix a number, must determine how many flocks he intends to feed, and the number in each flock, lest there be too much or too little grazing ground for them, and loss be the result. He must know besides how many breeding ewes to keep in a flock, how many rams, how many lambs of each sex, and how many of the poorer[1] sort should be weeded out.

[1] *Quot reiculae.* Cf. Nonius (*sub verbum*, edit. Lindsay,

As to the rearing of them: if too many lambs are born, you must follow the practice of some farmers and part with some of them; the result of doing so is generally that the rest thrive better.

25 I am afraid, said Atticus, that you are mistaken, and that your nine divisions are applicable only to the smaller and greater cattle. For how will they apply to mules and shepherds, where there is no question either of "admission" or of "gestation"; for I see that in speaking of dogs the nine divisions may be
26 used. I grant, however, that the number nine may be retained in the case of human beings as well; for farmers keep women in the winter-quarters of the slaves—in the farm buildings, I mean—while some do so even in their summer quarters; their object being to make it easier to keep the shepherds with their flocks, to increase the number of the slaves by child-bearing, and thus to make their stock farming a more profitable business.

Said I: This number is not given as an exact one, any more than when we say that a thousand ships went to Troy, or speak of the court of the *Centumviri*[1] (hundred men) at Rome. So strike off, if you like, in the case of mules, the two things, impregna-

p. 247): *Reiculas oves, aut aetate aut morbo graves.* Varro, Cato vel de liberis educandis: *et ut in grege opilio oves minus idoneas removere solet, quas reiculas appellant.*

[1] *Centumviri.* They formed a court for the trial of certain civil causes at Rome—for the most part connected with property and especially with matters of inheritance. It consisted in Varro's time of 105 members chosen from the tribes (three from each of the thirty-five).

27 tion and foaling. Foaling? said Vaccius, as though one didn't sometimes hear of a mule having foaled[1] at Rome! I, to support him, put in the statement of Mago and Dionysius to the effect that mules and mares are delivered in the twelfth month after they have conceived. And so, said I, if the parturition of a mule be with us in Italy a portent, all countries do not agree with us in thinking it one. Swallows, moreover, and storks, which breed in Italy, do not do so in all countries. You know, of course, that the Syrian date-palm,[2] which bears in Judaea, can-
28 not do so in Italy. But, said Scrofa, if you prefer to make up the number eighty-one without reference to the parturition of mules and the rearing of their young, there is a way of filling up the two gaps, for there are, in addition, two supplementary means of making profit which are of considerable importance; one of which is shearing—for sheep and goats are shorn or plucked—the other, of wider extent, has to do with milk and cheese; to it the Greeks have given a special name, τυροποιία, and have written much concerning it.

[1] *Peperisse*, held as a prodigy by the Romans. Cf. Livy, xxvi, 23: *lapidibus pluisse et Reate mulam peperisse*; and again, xxxvii, 3: *Terra apud se pluisse Tusculani nunciabant: et Reatini mulam in agro suo peperisse.* It is curious how often Varro's Reate is mentioned by Livy as the scene of prodigies!

[2] *Palmulas.* Pliny (N. H., xiii, 4): *Judaea vero inclyta est vel magis palmis. . . . Sunt quidem et in Europa vulgoque Italia, sed steriles.*

CHAPTER II

OF SHEEP

1 BUT, as we have now completed our task, and the subject of cattle-raising has been sketched in outline, it is the turn of you Epirot experts to fill in the details and show the mettle[1] of shepherds from Pergamis[2] and Maledos. Then Atticus, who was then
2 Titus Pomponius, but is now called Quintus Caecilius Atticus,[3] as he still keeps the cognomen Atticus, said, I suppose I had better begin, for if I am not mistaken it was at me you looked when you spoke just now. My topic shall be the most ancient

[1] *Potis sint.* Archaic, of course, for *possint.* Varro, L. L., vii, 5, quotes Pacuvius: *Nulla res neque Cicurare neque mederi potis est.* The word *potis* is generally considered to be an indeclinable adjective or an adverb like *magis.* Varro, however, has *Dii potes.* Ennius has *potessunt* for *possunt.* Lucretius (v. 1): *Nec potis est cerni quod cassum lumine fertur,* "Nor is it possible," etc. Plautus (Poenulus, i, 2, 17): *Populo, cui lubet, plus satis dare potis sunt.*

[2] *Pergamis and Maledos.* Nothing seems to be known about either.

[3] *Nunc Quintus Caecilius.* In 58 B.C. Atticus was adopted (*testamento*) by his uncle Quintus Caecilius. On 4th October of the same year Cicero writes from Thessalonica to congratulate him. The letter is headed: "Cicero S. D., Q. Caecilio Q. F. Pomponiano Attico."

Atticus's full name after the adoption was thus: Quintus Caecilius Pomponianus Atticus. So Caius Octavius became C. Julius Caesar Octavianus.

kind of stock. For, as you remark, sheep were the first animals caught and tamed by mankind.

The first thing is to buy good ones, and such they will be as regards age if they are not too old on the one hand, nor on the other merely young lambs, for as the latter cannot yet give increase, so the former can no longer do so, but of the two, the age which is accompanied by hope is better than
3 that which is soon followed by death. As to type, a sheep should be big-bodied, with plenty of soft wool, with the hairs standing high and thick over the whole body, and especially about the shoulders and neck. The belly also should be covered with wool. Accordingly those which are without this quality were called by our ancestors *apicae*,[1] and were rejected as inferior. They should be short-legged. As to tails, it is the practice in Italy to have them long; in Syria, short.

4 It is of great importance to see that your flock be of a good breed. This can generally be determined by two indications: the external characteristics and the offspring. The best type of ram has the forehead well covered with wool, horns twisted and inclined towards the muzzle, gray eyes, ears covered with wool, broad breast, shoulders and hind-quarters, and the tail broad and long. You must see,

[1] *Apicae.* Pliny (N. H., viii, 48): *In ipsa ove satis generositatis ostenditur brevitate crurum, ventris vestitu: quibus nudus esset "apicas" vocabant, damnabantque. Syriae cubitales ovium candae.* The word is no doubt Greek, ἄπεκοι (ἄποκοι), from πόκος = fleece. Varro, ii, 2, 6, calls them *minas.*

too, that he has not a black or parti-coloured tongue, for those which have beget as a rule either black or parti-coloured lambs. Again, the offspring will prove the good quality of the breed if they be shapely.

5 In buying, we make[1] use of the rights implied in the form adopted. For in it some people make more, others fewer, reservations. Some people, for example, after settling the price per head of the sheep, stipulate that two lambs born after term should be reckoned as one sheep, and that where sheep have lost their teeth through age, two should count for one. For the rest the ancient "formula" is generally used: after the purchaser has said, Have I bought them for so much? and the seller has replied, You have,[2] and the purchaser has pledged himself to pay the price, the latter then asks for a warrant, using the words of the time-honoured for-
6 mula:—Do you guarantee that those sheep before our eyes, about which the bargain is being made, are

[1] *Quae lex praescripsit.* Cicero (De Oratore, i, 58) speaks of the *leges Manilianae venalium vendendorum*, concerning which Ernesti (Clavis Cicer. article *lex*) remarks, *Quid sunt nisi formulae a Illo conceptae quibus uti in emendis vendendisque rebus liceret?* They were probably not laws in our sense of the word, but forms—like our forms of agreement between landlord and tenant—which it was prudent alike for buyers and sellers to use.

[2] *Et expromisit nummos.* Keil places a comma here, Schneider a colon. Either makes the sense obscure, whereas if the comma be placed after *emptor* it is clear—*et expromisit nummos emptor.*

genuinely sound in the sense in which a flock of sheep is considered genuinely sound, excluding[1] those blind of one eye, deaf, or *minae*—that is,[2] with belly devoid of wool—that they do not come from a tainted flock, that possession is good in law, and that this sale is legal? When this has been done, the flock has still not changed owner unless the money has been paid down; yet the buyer may bring and win an action under the head of "bought and sold"[3] against the seller if he does not deliver them, even though he may not have paid the money, just as the seller may bring a similar action against the buyer if he does not pay.

[1] *Extra. Extra quam si*, words which introduce an exception in the text of an agreement. Cf. Cicero (Ad Atticum, vi, 1, 14): *Extra quam si ita negotium gestum est ut eo stari non oporteat ex fide bona.*

[2] *Id est ventre glabro.* If these words are not an interpolation made by an unintelligent copyist, *apicae* and *minae* have the same meaning. This does not seem probable, for both the words are explained by Festus: Apice *dicitur ovis quae ventrem glabrum habet;* and: Minam *ait Aelius vocitatam mammam alteram lacte deficientem* (for *alteram*, which is unintelligible, *alturae* or *ad alturam* is plausible).

Meursius, and after him Müller, suggest that *minus* is the positive of *minor*, and means *tenuis* (cf. modern Welsh, *main* = "slight." Perhaps the word means here "with undeveloped teats," and the following phrase is a gloss.

[3] *Ex empto vendito*, a *titulus iuris.* Cf. Cicero (De N. D., iii, cap. 30): *Reliqua quae ex empto aut vendito. . . . Contra fidem fiunt.*

As to the fact, cf. Justin, Instit., iii, 24: *Emptio et venditio contrahitur simul atque de pretio convenerit quamvis nondum pretium numeratum sit.*

7 The second four divisions—feeding, breeding, rearing, and the health of the flock, I will discuss in order.

In the first place you must see that the sheep be properly fed, indoors and out, the whole year round; their stalls must be in a suitable place, free from draughts, and facing east rather than south. The ground on which they are to stand should be levelled, and sloping, so that it may easily be swept out and cleaned. For wet spoils not only a sheep's wool, but the hoofs as well, and makes them scabby.

8 After they have been for some days [on the same bedding] you must put under them fresh brushwood, that they may have a softer couch to sleep on, and be cleaner. For so their appetites are better. You must also build pens apart from the rest that you may be able to isolate the pregnant ewes, as well as those which are ill. These instructions are applicable more especially to flocks which are kept at the
9 farmstead. On the other hand, those others which feed on grazing grounds, and are far from roofed buildings, take with them hurdles or netting, with which sheepfolds may be made in the wilderness—and all other needful things. For generally, sheep range far, and graze in places wide apart, the winter pastures often being many miles from those used in summer. I know that well enough, I exclaimed, for flocks of mine used to winter in Apulia which spent the summer on the mountains about Reate, though the pastures were far from each other and

connected between these two places by public tracks
10 like a pair[1] of baskets by their yoke. And even when
they graze in the same district all the year, yet the
seasons make a difference to their times of feeding,
for in summer they go forth to feed as the day is
breaking, since then the dewy grass is sweeter than
the drier herbage of noon. When the sun is well up,[2]
the shepherds drive them forth to drink, that by
thus refreshing them they may make them eager
11 again to feed. During the noon-tide heats, they
are brought beneath the shade of rocks and spread-
ing trees that they may cool down until the heat
abates. In the cool evening air they feed them again
until sun-set. When feeding sheep you should drive
them so that they have their backs turned to the sun,
for in a sheep the head[3] is the weakest part. A
short while after sunset they are taken to drink,
and then fed again until it grows dark; for after
sunset the sweetness of the grass will be a second
time renewed.[4] This way of feeding is generally

[1] *Sirpiculos.* Possibly connected with *sirpea* which Varro defines (L. L. v, 39): *Sirpea quae virgis sirpatur, id est colligando implicatur in qua stercus aliudve quid vehitur.* The *iugum* (yoke) is the Greek ἄσιλλα or ἀναφορεύς, used to carry buckets, pails, etc.

[2] *Prima luce.* With this passage compare Virgil's beautiful paraphrase (Georg., iii, 324-338), and Columella's directions concerning the feeding of sheep (vii, 3, 23).

[3] *Caput.* Columella, vii, 3, 24: *Si quidem plurimum refert ut ne pascentium capita sint adversa soli.*

[4] *Redintegrabit.* Perhaps the translation should run, "will again refresh them," though one suspects that *redintegrabitur*

practised from the rising of the Pleiads to the
12 autumnal equinox. In places where the harvest has just been got, it is a good thing to drive them on to the corn-fields, for a double reason: they get fat on the fallen ears, and by trampling the straw and by dunging they improve the crops for the following year. The other modes of feeding in winter and spring-time differ from this in that they drive the sheep out to pasture only when the hoar-frost has evaporated, and feed them throughout the whole day, thinking it enough to take them once only to drink, at noon.

13 So much for the different ways of feeding. What I am now about to say relates to breeding. The rams which you mean to use for this purpose should be separated from the flock two months[1] before, and given a more generous allowance of food. When they return from grazing to their stalls, if barley is given them they grow stronger and more capable of enduring fatigue.

The best time for their service is from the setting of Arcturus[2] to the setting of Aquila, for those that

not *redintegrabit* should be in the text. Cf. Vergil (Georg., iii, 336):

Solis ad occasum cum frigidus aera Vesper
Temperat et saltus reficit iam roscida Luna.

Varro (iii, 7, 6) uses *redintegrare* in the sense of "refresh": *quod libero aere, cum exierint in agros, redintegrentur.*

[1] *Bimestri tempore.* Cf. Geoponica, xviii, 3, where Varro is closely followed throughout the chapter.

[2] *Ab Arcturi occasu.* Pliny (N. H., viii, 47) gives precise dates—from 13th May to 23rd July.

are conceived later than this grow up small and
14 weak. A sheep is pregnant for 150 days. Thus birth takes place at the end of autumn, when the air is temperate, and the grass, called forth by the first showers, is beginning to spring up. As long as the ram is serving there must be no change in the water,[1] as a change makes the wool streaky in colour, and damages the womb. When all the ewes have conceived, you must again separate the rams from the flock, for[2] by pestering sheep already pregnant they do them harm. Again you must not let ewes under two years old be covered, for if they are, what is born of them is of no use, and the mothers themselves are harmed. There is none better for breeding than a three-year-old ewe. Ewes are sometimes protected from the male by fastening behind them small baskets made of rushes or some other material. They are, however, more easily kept safe if fed apart.

15 As to the rearing of lambs: so soon as the ewes begin to bear they are driven into stables set apart for the purpose, and in them the new-born lambs are put close to the fire until they have gained strength. The ewes are then kept in these stables

[1] *Eadem aqua uti.* Aristotle (Hist. An., iii, 12), discussing the change of colour in animals, says: *καὶ περὶ τὰς ὀχείας δ' ἐστὶν ὕδατα πολλαχοῦ τοιαῦτα, ἃ πίνοντα καὶ ὀχεύσαντα μετὰ τὴν πόσιν τὰ πρόβατα, μέλανας γεννῶσι τοὺς ἄρνας, κ.τ.λ.*

[2] *Iam.* So Keil for the reading of the MSS. *ita.* But the latter seems to make excellent sense: "they do harm to the ewes which have thus become pregnant, by pestering them," the word *ita* having reference to *cum conceperunt.*

two or three days, until the lambs learn to recognize their mothers and get their fill of food. Next, when the mothers go out with the flock to graze, the lambs are kept at home, and when the mothers are brought back to them towards evening, they are suckled by them, and then again separated, lest the mothers should trample[1] on them in the night. This procedure is repeated in the morning, before the mothers go out to graze, that the little lambs may
16 get a good meal[2] of milk. When about ten days have elapsed, stakes are driven into the ground, and to these the lambs are fastened at some distance from one another, by strings made of rind or some other smooth material, lest by running about all day and colliding with one another the frail little things knock the skin off a limb. If a lamb will not come to its mother's udder, you must put it there, and smear its lips with butter[3] or hog's lard, and give its lips the savour[4] of milk. A few days after

[1] *Conculcentur.* Cf. Geoponica (*loc. cit.*).

[2] *Satulli*, a diminutive from *satur.* The fondness for diminutives, a characteristic of rustic Latin, is strong in modern Italian. This word *satullus* = Italian *satollo*, and Varro's word, quoted by Nonius, *satullare* = Italian *satollare*.

[3] *Buturo.* Pliny (N. H. xxviii, 9) describes butter-making, and tells one a good deal about butter. "Amongst barbarous nations it is highly esteemed as a food." "Hog's lard comes next to it in merit." "It may be used instead of oil" (xxviii, 10), and is a "capital remedy if you happen to have swallowed a leech." "It is astringent, fattening, emollient, and purgative." But it is difficult to understand why the lambs' lips are to be smeared with it!

[4] *Olfacere labra.* The text must be corrupt here. *Olfacere*

you should give them ground vetch or young grass before they go out to graze, and also when they
17 return. And in this manner they are reared until they reach four months. Some people meanwhile do not milk the mothers at these times. They do still better who do not milk them at all the whole time, as they then give more wool and bear more lambs. When the lambs are weaned care must be taken lest, missing the mother's udder, they pine away. So in rearing them you must make the loss more easy for them by good feeding, and must take care that they do not suffer at all from cold or heat.
18 When, having forgotten milk, the lamb ceases to miss its mother, then, but not till then, should you let it join the flock. Lambs must not be castrated before they are five months old, nor before the extreme heat or cold has abated. The rams preferred for service are those which come from dams that usually bear twins.[3]

makes no sense. Schneider in his index gives it the meaning of *προσοσφραίνεσθαι*, but this, in the only place I can find it, Geoponica, xix, 2, means to "bring to smell." One would have expected *madefacere* or something of the kind. Columella (vii, 3, 17) says that the teats of the mother should be pressed and a few drops of milk squeezed between the parted lips of the lamb, *uberibus ad moveri, tum etiam eius diductum os pressis humectare pupillis. Madefacere* is used by Varro, ii, 4, 15, and iii, 10, 7. If in the MS. the *ma* were obliterated, *defacere* might easily be altered to *olfacere* by one of the *canes qui tam misere Varronem dilacerarunt!* as Schneider calls the copyists.

[3] *Geminos.* Aristotle (H. A. vi, 19) says that "sheep or

In general a similar treatment should be followed with "jacketed"[1] sheep, such as those of Tarentum[2] and Attica, which are protected by skin jackets, so that their wool may not be soiled, as dirt prevents it from being properly dyed, washed, and bleached.
19 Greater care is taken that the pens and stables of these sheep may be clean than in the case of those with coarse wool, the stable being paved to prevent urine from collecting anywhere in it. They are given whatever they like to eat, such as fig-leaves, straw, grape-skins, bran, in moderate quantities, so that they may eat neither too much nor too little, as either extreme prevents them from putting on flesh. For this purpose the best food is lucerne[3]

goats produce twins, if they are well fed, or if the ram or he-goat is accustomed to get twins or the mother to bear them."

[1] *In ovibus pellitis.* Cf. Pliny (N. H. viii, 47): *Ovium summa genera duo, tectum et colonicum, illud mollius, hoc in pascuo delicatius quippe cum tectum rubis vescatur,*" where *tectum = pellitum.* The delicate sheep with fine wool, such as those of Megara, Attica, and Tarentum, were protected against the cold and dirt by jackets made of skin. Diogenes the Cynic (Cf. Diogenes Laertius in vita Diogenis) when he was in Megara noticed that the children went about naked, while the rams were clothed, and remarked that it was evidently better to be a Megarian's ram than his child!

[2] *Tarentum.* Festus, in a much mutilated text, appears to say that a Tarentine sheep was worth about a pound sterling.

[3] *Medica.* Columella (ii, 11, 2) praises it extravagantly: "One sowing lasts ten years; it gives generally four, sometimes six cuttings in the year, enriches the land, fattens all kinds of lean cattle, and cures such as are sick. Two-thirds of an acre of it will feed, and feed well, three horses for a whole

and snail-clover, for it fattens them readily and produces milk.

As to the health of the flock there are many points to be noted; but these, as I said before, the flock-master has set down in a book. He also carries with him what is necessary for the medical treatment of the flock. The question of number remains for discussion. Some people make it greater, others less, for there is no one scale indicated by nature. In Epirus nearly all of us take care to have not less than one man for each hundred of the rough-coated variety, and two for each hundred of the "jacketed" sheep.

year." Pliny (N. H., xviii, 16) describes its appearance (*similis est trifolio, caule foliisque geniculata: quicquid in caule assurgit, folia contrahuntur*). According to him it was brought to Greece by the Medes—whence its name—in the time of Darius. Amphilochus wrote a whole book about it and the Cytisus. But Aristotle (H. A., iii, 21) states that *Medica* dries up the milk of animals, especially of ruminants. *Τῆς δὲ τροφῆς ἡ μὲν σβέννυσι τὸ γάλα, ὅιον ἡ Μηδικὴ πόα, καὶ μάλιστα τοῖς μηρυκάζουσι.* Palladius (April. Tit., i) repeats Columella, and adds that a cyathus full (.082 pint) of seed was enough to sow a plot of land 15 ft. by 10 ft.

CHAPTER III

OF GOATS

1 THEN said Cossinius to him, Long enough hast thou bleated, O Roman Faustulus,[1] now listen while I tell of goats, I, the Melanthius[2] of Homer, born out of season,[3] and learn from me how a man should speak without waste of words.

He who would form a flock of goats must first consider the question of age, buying such as can now yield increase, and of these preferring one that has a longer breeding time before it; for a young
2 one is more profitable than an old. As to their points: see that they be big and strong, having a smooth body, and thick hair (except when they are hairless—for there are two varities); under the chin

[1] *O Faustule.* An allusion to the shepherd foster-father of Romulus and Remus. He was the shepherd of Amulius.

[2] *Melanthio.* Melanthius was the goatherd (Μελάνθιος αἰπόλος αἰγῶν) of Ulysses, who supplied the suitors with the best of the flock (Od., xvii, 217). For this he was mutilated horribly and killed by Telemachus (xxii, 474).

[3] *Cordo. Cordus*, which means "born out of season," was a Roman family name (Quintilian, i, 4, 25). Cicero mentions a L. Cordus—a negotiator Siculus—(Verr., iv, 20). The phrase *Homerico Melanthio Cordo* reminds one of Persius's line (vi, 11), *Maconides Quintus pavone ex Pythagoreo*, where there is precisely the same kind of pun as here, for "Quintus" is a Roman praenomen and means "fifth," and Ennius (so the Scholiast) was fifth from the peacock—the order being, peacock, Euphorbus, Homer, Pythagoras, Ennius.

they ought to have two teat-like appendages,[1] as those which have them are the most fertile. The udder should be large, that so they may give milk both rich and abundant. The he-goat must have rather soft hair, preferably white, neck and throat short, and larynx[2] comparatively long. The flock proves better if it be not a made-up collection, but a single flock[3] of old companions.

3 As for the breed, I say what Atticus said when treating of sheep, with this difference—the race of sheep is relatively slow-going, inasmuch as they are of gentler[4] temperament, while the goat kind are quicker of movement. About their nimbleness Cato in his book "Of Origins," writes these words: "On Mount Soracte[5] and Mount Fiscel-

[1] *Mammulas.* Columella (vii, 6, 2) calls them little warts: *Caper cui sub maxillis binae verruculae collo dependent optimus habetur.*

[2] *Gurgulione* (γαργαρεών). The Geoponica, xviii, 9, translate this βρόγχος. It is evidently the larynx prominent in males. In the same passage it is said that the goats should be δασύτριχες, *i.e.*, shaggy. The word *molliori* does not seem right. Perhaps *melioris* is the true reading.

[3] *Grex una.* Columella says (vii, 6, 5): *Atque ubi caprae primum comparantur, melius est unum gregem totum quam ex pluribus particulatim mercari,* and gives as reasons *ut nec in pastione separatim laciniae diducantur, et in caprili maiore concordia quietae consistant.*

[4] *Placidiores.* Aristotle (H. A. ix, 3): αἱ γὰρ ὄϊες μᾶλλον ἡσυχάζουσι καὶ προσέρχονται πρὸς ἀνθρώπους.

[5] *Soracti.* For a most interesting account of Mount Soracte (Sant Oreste) see Dennis, "Cities and Cemeteries of Etruria," cap. x.

lus[1] there are wild she-goats that will leap more than sixty feet from a rock." I quote this because just as domestic sheep are sprung from wild ones, so the goats which we feed are sprung from the wild kind. From them the island of Caprasia,[2] near Italy, takes its name.

4 Since among she-goats such as bear twins are the best breed, it is customary to choose for breeding purposes the males sprung from these. Some people, too, take care to have she-goats from the island of Melia,[3] as it is thought that there the biggest and handsomest kids are born.

5 As to buying, I do not[4] give the same formula as

[1] *Fiscello.* Varro (ii, 1, 5) speaks of the wild goats near Mount Fiscellus. Here the river Nar (now Nera) had its source —a river whose waters are still white and still *vitiatus odoro sulfure* (Claudian i, 256). Reate (Rieti), Varro's birthplace, is on this river.

[2] *Caprasia.* Now Cabrera (goat island), a little south of Minorca.

[3] *Melia.* Probably (Scaliger) the island of Melos, in the Cretan Sea. I have searched the geographers but can find nowhere any connection between Melos and goats mentioned. But the mountainous nature of the country is well suited to them.

[4] *Aliter dico atque fit.* Atticus had before (ii, 2, 6) mentioned the "ancient formula" used in buying sheep. In this they were guaranteed to be healthy and from a healthy flock. In this chapter, § 3, Cossinius says that he agrees with Atticus about the breed of goats; and here that the formula quoted by Atticus for buying sheep will not serve for buying goats and is in point of fact not used.

This sense, which seems clear, has apparently escaped all the

Atticus did for sheep, and the usage is different, for no one of sound mind guarantees goats sound, as they are never without fever.[1] Accordingly the warrant required contains only a few stipulations taken from the general formula, and Manilius[2] has left on record the following: "Do you guarantee these she-goats as being to-day able to eat and drink properly, and that the purchase is legal?" There is a remarkable fact about goats, related also by Archelaus:[3] several shepherds more observant than the rest assert that they do not breathe through their nostrils like other animals, but through their ears.

6 With regard to the second four divisions, my opinion about the feeding of goats is as follows.

commentators. The objection to the translation is, of course, that *aliter atque* would in normal Latin mean "otherwise than," but there is no reason why the passage should not mean *dico atque fit aliter*. I say differently and the practice is different. This agrees perfectly with what follows.

[1] *Sine febri sunt.* Geoponica, xviii, 9: φυσικῶς ἀει πυρέττει, and go on to say that "if the fever leaves them they die." Another interesting fact mentioned in the same chapter is that a he-goat will not run away if you cut off his beard!

[2] *Manilius.* Manius (not Marcus) Manilius, a celebrated jurisconsult, the author of the Leges Manilianae (*venalium vendendorum*). He was Consul 149 B.C.

[3] *Archelaus.* Pliny (N. H., xviii, 3) mentions him among the kings who have written on agriculture, and—viii, 50 credits him with the statement in the text *Auribus eas spirare non naribus, nec umquam febri carere Archelaus auctor est.*

Aristotle (H. A., i, xi) says: "Alcmaeon does not speak the truth when he asserts that goats breathe through their ears."

The flock is better housed if the stable faces the winter sunrise, for goats are chilly[1] animals. It, like most stables, should be paved with stone or bricks[2] to prevent the goat-house from being damp and muddy. When they have to sleep out of doors, pens also facing the same quarter of the heavens should be strewn with brushwood, that they may not get dirty. In the feeding of this kind of cattle much the same attention must be given to them as to
7 sheep, though they have their own peculiarities, as they are happier in woodland glades than in meadows. For they eagerly pluck their food from wild shrubs, and on cultivated land nip off small branches. For this reason goats get their name (*caprae*) from *carpere* (to pluck). Hence, too, in the text of an agreement for letting a farm, an exceptive clause is generally found forbidding the tenant to graze on the farm the offspring of the she-goat. For the she-goat's teeth are hostile to the growing crops, and even the astronomers, while admitting them to the sky, have shut them out from the circle of the twelve signs—the two kids and the she-goat being not far from the bull.[3]

8 With regard to breeding: At the close of

[1] *Alsiosum.* Aristotle (H. A., ix, 3): *εἰσὶ δ' αἱ αἶγες δυσριγότεραι τῶν ὕϊων.*

[2] *Testa* (Vitruvius, ii, 8) = *lateres cocti*, kiln-baked bricks.

[3] *Sunt duo haedi . . . a tauro.* These words Ursinus, Gesner, and Schneider would expunge from the text, thinking them to have been taken by a commentator from ii, 1, 8. But Varro frequently repeats himself.

autumn (about 10th November) the males are driven from the flock which is on the plain to goat-houses, as has been mentioned in the case of rams.[1] Those goats which have conceived are delivered after the fourth month[2] in the springtime.

As to rearing: As soon as the kids are three months old, they are put into the flock and begin to form a part of it.

What am I to say of their health, when they are never healthy? I will just mention the one fact that the guardians of a flock have certain written directions as to what remedies to use against some of their diseases and against wounds, which are of frequent occurrence in their case, as they fight with one another with their horns and feed in thorny places.

9 There remains for discussion the question of number. This is smaller in the case of a flock of goats than of sheep, as she-goats are full of mischief,[3] and prone to scatter, whilst sheep are gregarious in nature and huddle together into one place. Hence in the Ager Gallicus[4] men keep many in preference to large flocks, for in those which are large disease often breaks out suddenly, and brings

[1] *Ut in arietibus dictum.* Cf. ii, 2, 13.

[2] *Post quartum mensem.* Aristotle, H. A., vi. 9: *κύει δὲ πέντε μῆνας καὶ πρόβατον καὶ αἴξ.*

Pliny, N. H., viii, 50: *Concipiunt Novembri mense ut Martio pariant.*

[3] *Lascivae.* Cf. Columella, vii, 6, 7.

[4] *Ager Gallicus.* Cf. note, i, 14, 4.

10 them to destruction. A flock of about fifty is considered big enough. And these conclusions are supported, it is thought, by what happened to Gaberius, a Roman *eques*. He owned 1,000 *iugera*[1] (700 acres) on the outskirts of Rome, and hearing from a certain goat-herd, who had brought to the city ten she-goats, that each of them brought him in a *denarius* a day, he bought a thousand she-goats, expecting to get from his estate a thousand *denarii* (£32) a day. So far was he out in his reckoning, that in a short time he lost them all through disease. However, in the country of the Sallentini and about Casinum they graze flocks containing as many as a hundred[2] she-goats.

As to the proportion of males to females, there is much the same difference of opinion, some, like myself, providing one he-goat to ten females, others, like Menas,[3] one to fifteen; others again, such as Murrius, one to twenty.

[1] *Mille iugerum.* Varro, ii, 1, 26, has *mille naves.* In every other place where the word occurs in the singular in this work, it is a neuter noun. Aulus Gellius (i, 16) gives many examples of its use as a *declinable* neuter noun, quoting from Cicero (Mil. 53), *Mille hominum versabatur*, and Lucilius (Bk. xv), *Hunc* milli *passum qui vicerit atque duobus* || *Campanus sonipes*, etc., and again from Lucilius (Bk. viii), *Tu milli nummum potes uno quaerere centum.*

[2] *Ad centenas.* Columella (vii, 6, 5) makes this number the superior limit, though, he says, there is no objection to your penning 1,000 sheep together. *Sed numerum huius generis maiorem quam centum capitum sub uno clauso non expedit habere, cum lanigerae mille pariter commode stabulentur.*

[3] *Menas* is possibly the freedman of whom Suetonius

CHAPTER IV

OF PIGS

1 BUT who[1] next sails out from an Italian port to discuss the subject of pigs? Scrofa's peculiar fitness to discuss this question is, however, indicated by his nick-name Scrofa. Said Tremellius (Scrofa) to him, You don't seem to know why I am called Scrofa. So, in order that you and our friends sitting near you may learn the reason, let me tell you that the surname connected with pigs does not belong to my *gens*, and that I do not claim descent from Eumaeus.[2] My grandfather was the first to be

speaks (Augusti Vita, 74): *Valerius Messala tradit, neminem umquam libertinorum adhibitum abeo caenae, excepto Mena, sed asserto in ingenuitatem post proditam Sexti Pompei classem.* The Menas who first brought barbers to Rome, 300 B.C., was a Sicilian. Cf. Pliny (N. H., vii, 59).

[1] *Sed quis e portu*, etc. Many ingenious emendations have been proposed of these words, the best being Schneider's: *Sed quis e porculatoribus Italicis.* But none is needed. The last two speakers, Atticus and Cossinius, were called by Varro (ii, 1, 2) *semi-graeci* and *Epirotici pecuariae athletae.* Atticus (Athenian) was a Greek cognomen, and Cossinius had just described himself as Homericus Melanthius Cordus. Now it is suggested that a genuine Italian hailing from an Italian harbour should treat the subject of pigs, not Greeks from Athens or Epirus.

[2] *Eumaeus* was the swine-herd (*δῖος ὑφορβός—συβώτης ὄρχαμος ἀνδρῶν.*—Od., xiv, beginning) and faithful servant of Ulysses and looked after his 600 brood sows in Ithaca. He received and fed Ulysses when he returned home.

called Scrofa. He, being quaestor to Licinius Nerva,[1] who was praetor in the province of Macedonia, had been left in command of the army until the return of the praetor, whereupon the enemy, thinking that they had a chance of victory, began
2 to assault the camp. My grandfather, as he urged the soldiers to take up their arms and sally forth against the enemy, said that he would scatter them as a sow scatters[2] young pigs. And scatter them he did, for in that battle he routed the enemy so

[1] *A. Licinius Nerva* was one of the envoys (169 B.C.) sent by the Senate to Macedonia to collect information about the general state of affairs for L. Aemilius Paullus (Consul designate) who was about to take the field against King Perseus (Livy, xliv, 18).

A. Licinius Nerva is mentioned by Livy (xlv, 44) as one of the six praetors created 167 B.C., a year after the battle of Pydna and the deposition of Perseus—so that Varro's story does not relate to the Macedonian war. Macedon, moreover, did not become a Roman province before 148 B.C. In 142 B.C. a pretender to the name of Alexander (a brother of Philip) headed a revolt against the Roman power, which was promptly crushed. Probably Nerva was praetor for the second time in 142 B.C., and it was in this rising that L. Tremellius gained his cognomen Scrofa.

[2] *Disiecturum.* Cf. Plautus (Truc. ii, 2, 13): *Iam Hercle ego hic te, mulier, quasi sus catulos, pedibus proteram.* Macrobius (Saturn. i, 6) makes Tremellius win his name of Scrofa in a very different and much less creditable way. His slaves had stolen and killed a neighbour's sow. His house was surrounded and restitution of the *scrofa* demanded. Tremellius heard that the sow was hidden under his wife's bed, she being in bed at the time. He gave permission for his house to be searched, and when the bedroom was reached swore that he had no other sow in the house save that under the bed-

decisively that the praetor Nerva was on that account saluted as "Imperator," and my grandfather gained his nick-name, being thereafter called "Scrofa." Neither my great-grandfather, nor any of the Tremellii before him, was ever named Scrofa, and I am one of seven of my *gens* who were one after another praetors. However, I do not shirk
3 saying what I know about pigs, for I have loved farming from my youth, and the subject, moreover, will have an interest shared in common by you gentlemen and myself, as we are all of us great stock-breeders. For which of us farmers does not keep pigs, and has not heard our fathers say that that man is a lazy spendthrift who buys at the butcher's the flitch[1] hanging up in the larder, instead of growing it on his own farm?

To continue, the man who wants a good herd must firstly choose pigs of the right age, secondly of the right type; that is, having large limbs,[2] but

clothes. The searchers withdrew and Tremellius was ever afterwards called "Scrofa."

[1] *Succidiam.* Cf. Varro (L. L., v, 32): *Succidia ab suibus caedendis; nam id pecus primum occidere coeperunt domini et ut servarent sallere.* Cato (Aulus Gellius, xiii, 24) makes use of the expression *succidias humanas facere* = "to butcher men," and Cicero (De Senec., xvi) makes Cato say: *Iam hortum ipsi agricolae succidiam alteram appellant.* The farmers themselves call the garden their second flitch.

[2] *Cum amplitudine membrorum.* Cf. Geoponica (xix, 6): Τὰς μὲν θηλείας χοίρους δοκιμάζουσι τὰς παραμηκεστέρας καὶ περιοχὴν ἐχούσας καὶ μεγάλας τοῖς σώμασι, ἐκτὸς τῆς κεφαλῆς καὶ τῶν ποδῶν.

Columella (vii, 9, 1) says that the boars should be

small feet and heads. They are better of one uniform colour rather than parti-coloured. See that the boars have the same qualities, and in any case
4 that they have big shoulders. Pigs of a good breed are recognized by their shape, by the size of the litters, and by the district whence they come. By their shape, when boar and sow are handsome; by the litters, when these are big; and by the district, when they come from one where the breed is big,
5 not small. They are generally bought with this stipulation: "Do you guarantee that these sows are sound, that the possession of them is good in law, that they are warranted[1] against claims for damages,

"square" rather than long, but the sows as long of body as possible.

[1] *Noxis que praestari.* One would have expected either *a noxis praestari* as in Cicero (Ad Div., i, 4) *a vi praestare nihil possum*, or *noxis solutas* as in the Digests.

If any one of the pigs had done damage when with one owner, and then had been transferred to another, the action would lie against the latter. As was the case with a slave: Cf. Justinian (Inst., iv, tit. 8—De noxalibus actionibus): *Nam si servus tuus noxam commiserit: quamdiu in tua potestate sit, tecum est actio. Si autem in alterius potestatem pervenerit: cum illo incipit actio esse.* The phrase may also have reference to bad habits contracted before purchase, which might lead to the loss or damage of the animals. Cf. Alexander ab Alexandro, iii, 14 (about the middle): *Quod si periculosam rem antea facere servus consuerat . . . tuque vendito a te servo id imperasti quod sine periculo exsequi nequibat, censuit Paulus teneri venditorem ob necem damnumve si quam in perniciem servus incurrisset.* I now incline to the latter view, and would translate, "warranted free from dangerous habits."

and that they do not come from a diseased herd?" Some people add "and have got through fever and diarrhoea."[1]

For the pasturing of this kind of stock a damp place is suitable, for it delights both in water and in mud. And[2] this is the reason, they say, why a wolf which has got hold of a sow drags it to the water, as its teeth cannot bear the heat of the flesh.
6 This animal (the pig) feeds especially on acorns—failing them, on beans, barley, and other grains, for these not only produce fat, but also give the flesh a pleasant flavour.

In summer they are driven out to pasture in the morning before the heat begins to a shady place, where there must be water. In the afternoon, when the great heat has abated, they are allowed to graze again. In the winter-time we do not drive them out

[1] *Foria.* Nonius (Foriolus): *Foriolus, qui foria facile emittat, soluti scilicet ventris.* He defines *foria* as *stercora liquidiora.* Aristotle (Hist. An., viii, 21) says that pigs suffer from three diseases: (1) βράγχος, characterized by inflammatory swelling of the throat and jaws; (2) fever (κραῦρα) accompanied by headache and dullness, which may be cured, but usually kills in three or four days; and (3) diarrhoea, "which appears to be incurable." Δύο δ' ἀλλ' ἐστι, λέγεται δε κραυρᾶν ἄμφω ὧν τὸ μὲν ἕτερόν ἐστι κεφαλῆς πόνος και βάρος . . . τὸ δ' ἕτερον, ἡ κοιλία ῥεῖ. καὶ τοῦτο μὲν δοκεῖ ἀνίατον εἶναι. Varro obviously alludes to (2) and (3). κραῦρα in (2) is, to judge from the rest of Aristotle's description, a scrofulous disease accompanied by fever. Columella (vii, 10) and the Geoponica (xix, 7) also discuss the subject.

[2] *Itaque*, etc. The meaning is, of course, swine love to bathe [as they are hot-blooded], so much so that a wolf, etc.

to feed until the hoar-frost has evaporated, and the ice has melted.

7 For breeding, the boars should be separated from the herd two months before they are admitted to the sows. The best time for their admission is from Favonius to the vernal equinox, as thus the sow brings forth her young in the summer,[1] for she goes four months and then litters when there is plenty of pasturage on the land. The sows should not be covered before they are a year old; it is better to wait until they are twenty months, that they may be two years old when they become mothers. It is said that after they have begun[2] to breed they can go on well up to the seventh year.

8 At the time of covering they are driven forth into miry paths[3] and muddy pools that they may wallow

[1] *Aestate pariat.* The Geoponica (xix, 6) follow Varro. *ἀρίστη δὲ ὥρα . . . ἀπὸ ζεφύρου πνοῆς ἕως ἐαρινῆς ἰσημερίας, ὥστε γένεσθαι κατὰ τὸ θέρος τὸν τοκετόν.* Aristotle (H. A., v, 14) says that the young pigs born in summer are the worst, being puny and thin, and that the best time for birth is the beginning of winter. This is no doubt true in the case of a hot climate.

[2] *Cum coeperunt.* Columella (vii, 9, 3): *Femina sus habetur ad partus edendos idonea fere usque in annos septem, quae quanto foecundior est celerius senescit.*

[3] *Lutosos limites. Limites* does not seem to be the right word. Schneider suggests *lamas*, bogs, which the scholiast to Horace (Ep., i, 13, 10) defines as *lacunas maiores continentes aquam pluviam*, quoting from Ennius.

Silvorum saltus, latebras, lamasque lutoras.

The word was rare, and would probably have been unintel-

in the mire, which is as much rest and refreshment to them, as bathing is to a human being. When the sows have all conceived, the boars are again separated from the herd. A boar of eight[1] months begins to procreate, and remains able to do so adequately up to three years old; then he goes down-hill,[2] until finally he reaches the butcher, the appointed go-between for pork and people.

9 The pig is called in Greek ὗς, formerly ὑῦς, from the verb ὑέειν, to sacrifice, for when men first sacrificed animals, they began apparently with the race of pigs. Traces of this remain in the sacrifice of a pig at the initiation[3] in the Eleusinian mysteries; the killing of one at the initiation of peace when a treaty[4] is struck; and in the fact that at the begin-

ligible to a copyist. *Lama* in modern Italian means a swamp. Dante (Inf., xx, 99): *Non molto ha corso, che trova una* lama.

[1] *Octo mensum.* Columella (vii, 9, 3) says six. *Possunt tamen etiam* semestres *implere feminam.*

[2] *It retro.* He deteriorates, as in Vergil's oft-quoted lines:

Sic omnia fatis
In peius ruere et retro sublapsa referri.

Columella (vii, 9, 4) says that boars, when three or four years old, are castrated and then fattened, *bimi aut quadrimi castrantur ut possint pinguescere*; Aristotle (H. A., ix, 50) that ovariotomy was performed on sows for the same purpose. ἐκτέμνεται δὲ καὶ ἡ καπρὶα τῶν θηλειῶν ὑῶν ὥστε . . . πιαίνεσθαι ταχέως.

[3] *Initiis Cereris.* διὰ τὸ ἐν τοῖς μυστηρίοις τῆς Δήμητρος θύεσθαι χοίρους. Scholiast on Aristophanes' Achar., 729 (764).

[4] *Foedus.* Cf. Vergil, viii, 641: *Stabant; et caesa iungebant foedera porca,* where Servius (*ad loc.*) says that Vergil ought to have written *porco* (as Varro here): *falso autem ait* porca; *nam ad hoc genus sacrificii* porcus *adhibebatur.* According to

ning of a wedding among the ancient princes and exalted personages of Etruria the newly made husband and wife at their union first sacrifice a
10 pig.[1] The ancient Latins, too, as well as the Greeks, seem to have had the same custom; for the women of our country (especially nurses) call that part which in girls distinguishes their sex *porcus* (pig), the Greek women χοῖρον[2] (pig), meaning that the term is a worthy symbol of marriage. The race of pigs is, they say, a gift of nature designed to grace the banquet, and so life[3] was given them, just as salt is, to keep their flesh good.

Athenaeus men first learnt the joys of roast pork through sacrifice. Lamb, in his essay on roast pork, assigns another and an equally credible origin.

[1] *Porcum immolant.* Athenaeus (Deipn., iii) says that the ancient Greeks used to sacrifice a pig to Venus, and Aristophanes (Ach., 758) has:

ΔΙ. ἀλλ' οὐχὶ χοῖρος τ' Ἀφροδίτῃ, θύεται.
ΜΕ. οὐ χοῖρος Ἀφροδίτᾳ; μόνᾳ γα δαιμόνων.

But this is a mere scurrility; and neither passage helps us to a knowledge of the Etruscan custom about which I can find nothing.

[2] χοῖρον, as frequently in Aristophanes. Cf. Scholiast on Acharnians, 737 (773): Τοῦτο φήσιν ἐπεὶ καὶ τὸ γυναικεῖον αἰδοῖον χοῖρον ἐκάλουν οἱ Ἕλληνες.

[3] *Anima.* Cicero (Nat. D., ii, 64) ascribes this saying to the Stoic Chrysippus. *Sus vero, quid habet praeter escam? Cui quidem, ne putresceret, animam ipsam pro sale datam dicit esse Chrysippus.* He repeats the saying (De Fin., v, 13). Pliny (N. H., viii, 51) says that "the pig is the stupidest of animals, and it was thought, not without humour, that life was given to it instead of salt."

The Gauls make of them flitches of much excellence and great size. Their excellence is shown by the fact that at the present time there are brought to Rome every year Comacine[1] and Cavaran hams and
11 shoulders. Touching the size of the Gallic flitches, Cato writes in these terms: "In Italy (Lombardy), the Insubres salt three or four thousand flitches; the sow gets so fat than she cannot unaided keep

[1] *Comacinae et Cavarae.* *Comaci* (?) and *Cavari* were, probably, both tribes of Gallia Narbonensis, as the latter certainly were (Pliny, N. H., iii, 4). But the text here is very doubtful, and Schneider, Scaliger, and others have proposed many emendations with little to support them. Strabo (bk. iv) says that the best hams come from the Sequani, *ὅθεν αἱ κάλλισται ταριχεῖαι τῶν ὑείων κρεῶν εἰς τὴν Ῥώμην κατακομίζονται.* Schneider proves conclusively that the *pernae* were the hind-legs, the *petasones* the fore-legs.

This is Cato's (c. 162) recipe for salting hams: "When you have bought your hams, cut off the hoofs. Take half a peck of Roman salt ground fine for each. Lay salt over the bottom of the tub; then put in a ham, the skin-side looking downwards. Cover it over with salt. Then put another ham on top, taking care that meat does not touch meat. So deal with them all. When you have got them all snug put salt over them, so that no meat is visible, and make the surface level. When they have been in salt five days take them all out, and the salt with them. Then put them in again in reverse order so that those which were before on top are now at the bottom. Cover them over and make them snug in the same way as before. After twelve days at most, take the hams out, rub off all the salt and hang them up in a draught for two days. On the third day wipe them well over with a sponge and rub them with oil. Hang them for two days in the smoke. Then take them down, rub them well with a mixture of oil and vinegar and hang them up in the meat larder."

her feet nor advance a step. And so if one wants to move them from place to place, one puts them into a wagon." Atilius of Spain, a trustworthy author of wide experience and much learning, used to assert that once when a pig had been killed in Lusitania in further Spain, there were sent as a present to the senator L. Volumnius,[1] two of its ribs with the meat attached, which weighed twenty-three pounds, and that in that pig the depth of flesh from
12 skin to bone was one and a quarter feet. I said to him: A fact quite as strange was once told me in Arcadia, and I went, I remember, to look at a sow which was not only incapable of getting up owing to its fat, but had actually allowed a shrew-mouse to eat away some of its flesh and make a nest there and give birth to young ones. I am informed that the same thing has occurred in Venetia[2] also.

13 With regard to breeding, the fertility of a sow is generally estimated from the first litter, as she does not vary much in later ones. As to the rearing

[1] *L. Volumnio.* Cicero (Ad Div., vii, 32) mentions him as one of his intimate friends, *addubitavi num a Senatore essent Volumnio quocum mihi magnus est usus.*

[2] *In Vineta.* In place of this, which is unintelligible, I have translated Victorius's conjecture, *in Venetia.* Varro (i, 8, 5) speaks of vineyards being sometimes so overrun by mice that they had to be filled with mouse-traps. *In vineto* therefore suggested itself—but pigs do not live in vineyards! Scaliger remarks about this story that "none need hesitate to believe it, as there are people alive to-day who will testify that this has happened in the south of France!"

of the little pigs, which is called *porculatio*, these are left with the mother a couple of months; then, when they can feed for themselves, are separated from her. Pigs born in the winter become thin[1] owing to the cold, and because the mothers having but little milk, and in consequence finding their teats hurt by the young ones' teeth, push them away.

Every sow should have her own sty, and rear her own litter only, for she does not refuse to feed another's little ones; if, therefore, they get mixed,[2]
14 the sow becomes worse for breeding. Their year is naturally divided into two parts, as they give birth twice within the year, a sow being pregnant four months, and suckling for two. The sty should be

[1] *Exiles.* The Geoponica (xix, 6) say "owing to the inclemency of the weather and the fact that they do not get enough milk from their mothers, who push them away, as their teats lacking milk are violently squeezed and pulled by the teeth of the young ones. As to the teeth, cf. Pliny (N. H., viii, 51): *Diebus x, circa brumam statim dentatos nasci Nigidius tradit.* In winter they are born with teeth.

[2] *Conturbati.* Cf. Geoponica (xix, 6): *ὥστε μὴ μίγνυσθαι ἀλλήλοις τὰ παρὰ διαφόρων τικτόμενα· ἐὰν γὰρ ἀλλήλοις συναναμιγῇ, ἀδύνατον διαγνῶναι αὐτὰ τὰς τεκούσας.* If the young of different mothers are mixed, it is impossible for the mothers to distinguish their own. Columella (vii, 9, 11): *Nam facillime porci, si evaserint haram, miscent se, et scrofa cum decubuit aeque alieno ac suo praebet ubera.* From the last words of this passage it is obvious that the *non* inserted by Keil before *aspernatur* is necessary. It was omitted by the scribe no doubt owing to the *nos* of *alienos* immediately before it.

Columella recommends the branding of sow and pigs.

made about three[1] feet high, and a little more than three feet wide, not any lower than this from the ground lest a sow when pregnant should attempt to jump out and so miscarry. The height should be such that the swineherd can see the whole sty at a glance, and prevent any little pig from being crushed by its mother; and may also be able to clean out the hutch without difficulty. There should be a door to the sty, and the threshold[2] should be one and a third feet high, to prevent the little pigs from jumping over it when their mother
15 goes out. It is the swineherd's duty, every time he cleans out a sty, to throw sand into it or something of the kind, which will absorb moisture; and after a sow has littered, to keep up her strength with a more generous diet, so that she may be the better able to provide milk. It[3] is usual to give them about two pounds of barley apiece, soaked[4] in water, and this allowance some people double, giving it night and morning, if they have nothing
16 else to feed them with. After pigs have been weaned

[1] *Trium pedum altam.* Columella (vii, 9, 10) says four.

[2] *Limen inferius.* Columella (vii, 9, 13) prescribes *in tantam altitudinem consurgat quantam possit nutrix evadere, lactens autem supergredi non possit.*

[3] *In quibus.* Keil deletes the *in* without good reason, I think. *In quibus*, meaning "and in their case," is good Latin and very common in Varro.

[4] *Aqua madefactas* probably means "boiled." Columella (vii, 9, 13): *Quibus partus submittitur* cocto *sunt hordeo sustinendae.* And Aristotle (H. A., vi, 18, 35) prescribes the same food—τετοκυίᾳ δὲ τῇ ὕι κριθὰς ἑφθάς.

they are called by some people *delici*,[1] and are no longer spoken of as "sucking-pigs." On the tenth[2] day after birth they are considered "pure," and on that account were termed by the ancients *sacres*, because they are said to be then first fit for sacrifice. And so in the "Menaechimi" of Plautus, where the scene is laid in Epidamnus, one of the characters, thinking a man mad and in need of an expiatory sacrifice, asks him, "What's the price here of 'sacred' (*sacres*)[3] pigs?"

It is usual to give grape-skins and grape-stalks
17 if the farm supplies them. When they have lost the

[1] *Delici.* Derived, no doubt, from *delinquo.* As *relinquo* gives *relicuos* (Plaut.), which early in the first century became *relicus*, so from *delinquo* we may suppose *delicuos*, which later became *delicus.* This etymology would explain the use of the word *deliculus* by Cato (2, 7), *deliculа armenta, deliculas oves*, cattle and sheep *quae delinquuntur*—are removed, got rid of by sale.

[2] *Decimo die.* Pliny (N. H., viii, 51) says on the fifth day. *Suis foetus sacrificio die* quinto *purus est, pecoris die octavo, bovis trigesimo.* Festus (p. 318) agrees with Varro.

[3] *Sacres.* The lines alluded to by Varro are (Plaut., Menaechm., 289, etc.):

Adolescens quibus hic pretiis porci venеunt
Sacres, sinceri? Cy. *Nummo.* Me. *Eum a me accipe*
Jube te piari de mea pecunia
Nam ego quidem insanum esse te certo scio
Qui mihi molestus homini ignoto, quisquis es.

For the parasitic vowel in Menaechimis (for Menaechmis = Μεναίχμους), compare *mina* for Greek *μνά*, *Tecumessa* for Τεκμήσσα, etc.

name of "sucking-pigs" they are called *nefrendes*[1] (not-crunchers), from the fact that they are yet unable to crunch, that is, crush beans. The word *porcus* is an ancient Greek[2] word, now obsolete, for its place has been taken by the word χοῖρος.

On the birth of young ones care is taken that the sows drink twice a day, for the sake of their milk. A sow ought, they say, to give birth to as many pigs as she has teats;[3] if there are fewer she is not likely to be profitable, if more, it portends some-
18 thing. The most ancient recorded example of such a portent is Aeneas's sow,[4] which bore at Lavinium

[1] *Nefrendes.* Varro's etymology is possibly right. For the form of the word compare *negotium*, *nefastus*, etc. Martial (iii, 47) speaks of a sucking-pig as "not yet having vanquished beans."

Illic coronam pinguibus gravem turdis
Leporemque laesum Gallici canis dente
Nondumque victa *lacteum faba* porcum,

where instead of *victa*, *fresa* (from *frendere*) is sometimes read.

[2] *Porcus Graecum nomen.* πόρκος, cf. Plut., Popl., 11, and Varro, L. L., v, 19 (middle): *Porcus nisi si a Graecis quod Athenis in libris sacrorum scriptum est* porcae, porco (πόρκῃ, πόρκῳ).

[3] *Quot mammas habeat.* According to Pliny (N. H., xi, 41) the number varies: *haec plures habent, toto ventre duplici ordine, ut sues, generosae duodenas, vulgares binas minus.*

[4] *Sus Aeneae.* Cf. Aeneid, iii, 390-393. Servius (*ad loc.*) says with regard to the thirty little pigs that they signified the thirty years during which Ascanius should reign. *Prodigiale est hoc, quo significatur triginta annis regnaturus esse Ascanius.* Varro, L. L., v, cap. 40: *Hinc post triginta annos oppidum*

thirty white little pigs. And in the result what was portended did happen, as the men of Lavinium founded the town of Alba thirty years later. Of this sow and her young ones traces are even now to be found, for their likeness in bronze still stands where all may see, and the mother's body is shown by the priests (as it was, according to them, preserved in brine).

19 A sow can feed eight[1] quite little pigs at first; when they have grown bigger, a man who knows his business generally takes away half the number from her, as she cannot supply[2] milk enough for all, nor can the whole litter get enough food to

alterum conditur Alba; id ab sue alba nominatum. Haec e navi Aeneae quom fugisset Lavinium triginta parit porcos; ex hoc prodigio post Lavinium conditum annis triginta haec urbs facta, propter colorem suis et loci naturam Alba Longa dictum. It will be noticed that Varro's story differs from Vergil's. In the former's the sow had escaped from Aeneas's ship. Servius (*loc. cit.*) mentions both stories. Livy (i, 3) states that the Tiber was at this time called "Albula."

[1] *Octonos.* Cf. Columella (vii, 9, 13): *Qui tamen non debet octo capitum numerum excedere. Non quia ignorem fecunditatem scrofarum maioris esse numeri; sed quia celerrime fatiscit quae plures educat.*

Pliny (viii, 51): *Numerus fecunditatis ad vicenos (!): sed educare tam multos nequeunt.*

[2] *Sufferre*; in Varro (ii, 8, 5), in Columella, and in Vergil, the word means always "to bear." For it, therefore, Gesner proposed to substitute *sufficere*, which is of common occurrence in the sense of "to supply" especially in Vergil (cf. Georg., ii, 424, 436). Crescentius copying this passage has *neque mater* sufficienter *potest lac praebere.* So that the emendation seems plausible.

grow up strong and healthy. In the first ten days immediately following delivery, the mother is not brought out from the sty except to drink. When ten days have elapsed, she is allowed to go out and feed in some spot close to the farmstead, so that she can return frequently to suckle her little ones.
20 When the latter have grown big, they are allowed to follow their mother when she goes out to feed, but when at home they are separated from their dams, and fed apart, to the end that they may learn to go without the nursing mother. This they do in ten days.

The swineherd should train them to do everything in obedience to the sound of the horn.[1] After first shutting them in, he does not open the door until the horn blows, when they are taught to go out to a place where barley has been poured out in a long line—for by this method less is spoilt than if it were piled in a heap, and more pigs can get to it and with less trouble. The object we are told of bringing them together by blowing the horn is to

[1] *Ad bucinam.* Polybius (xv, 12, 2) describes the methods of the Italian swineherds of his day, who led their herds—not following them as in Greece—and directed their movements by blowing the horn—*βυκάνῃ φωνοῦντες.*

Columella (vi, 23, 3) mentions the use of the horn for assembling cows: *Cum pastorali signo quasi receptui canitur. Nam id quoque semper crepusculo fieri debet, ut ad sonum buccinae pecus, si quod in silvis substiterit, septa repetere consuescat. Sic enim recognosci grex poterit.*

The instrument is described by Ovid (Met., i, 335). It was twisted like a shell, spiral and gibbous.

prevent them from being lost when scattered apart in the woods.

21 Boars are best castrated[1] when they are a year, in any case not less than six months, old; which done, they change their name, and are called "hogs" (*maiales*)[2] instead of boars.

Touching the health of swine, I will mention but one fact in passing. If the sow cannot supply milk to the sucking-pigs, you should give them cooked wheat (for, if raw, it causes diarrhœa) or barley steeped in water, until they are three months old.

22 As to number: ten boars are enough, it is thought, for a hundred sows, though some men employ even fewer. The total number of pigs in a herd varies. I myself consider a hundred to be a good average. Some[3] owners prefer bigger herds of 150; others have twice as many; others even more than this.

[1] *Castrantur.* Columella (vii, 11) describes two methods.

[2] *Maiales.* The ancients derived the word from *Maia.* Schneider quotes Isidorus: *Maialis porcus pinguis quod Deae Maiiae sacrificabatur. Maiia* (so Cicero spells the word), or *Fauna*, or *Bona Dea* (ἡ γυναικεία θεός) was "so modest (Macrobius, Satur., i, § 27) that she never saw or was seen by a man, and on this account no man enters her temple." But to Maia, considered as the Earth, a pregnant sow was sacrificed. Cicero (in Pis., 9) calls Piso no consul but a *maialis*!

[3] *Aliquot.* In the MSS. *aliquod* no doubt for *aliquot.*

In these books there are three places where *aliquot* is used without an accompanying noun: this, where Keil thinks the word should be altered to *aliqui*, and two others, iii, 7, 5, and iii, 7, 11, where he actually does alter the text, on the ground that whereas *aliquot* is frequently used with a noun in these books, it does not seem to be used without.

A small herd entails less expense than a large one, as the swineherd needs fewer assistants. So the stock-farmer arranges the aggregate number in a herd to suit his convenience, but not so the proportion of boars, as this is dictated by nature.

CHAPTER V

OF COWS AND OXEN

1 SUCH was Scrofa's contribution. At this point the senator Lucienus,[1] a gentleman of extreme refinement and great humour with whom we were all well acquainted, came in and said, "How do you do, my fellow Epirots,[2] for Scrofa, and our friend Varro, ποιμένα λαῶν,[3] I saw and greeted early this morning. Some of us said, How do you do? to him, whilst others scolded him for not keeping his appointment more punctually. I will see you, he

[1] *Q. Lucienus Senator.* Varro (L. L., v, 1) has *Sic declinantes Graeci nostra nomina dicunt Lucienum* Λουκίενον *et Quintium* Κόϊντιον. I can find no allusion to him elsewhere.

[2] *Synepirotae. I.e.*, Συνηπειρῶται, the semi-Graeci, Atticus and Cossinius (cf. note on ii, 4, 1).

[3] ποιμένα λαῶν. "Shepherd of the people," a phrase commonly applied by Homer to kings and generals, frequently to Agamemnon, who led the fleet against Troy. Varro at the time of this conversation was in command of the fleet between Delos and Sicily. Cf. Varro's introduction to this book, § 6.

answered presently, my merry[1] friends, and will bring along[2] my hide and the whips,[3] but now will you, Murrius, come as my legal adviser, while I pay my pence to the Lares,[4] so that you can give evidence

[1] *Balatrones.* The word is rare and is generally taken to mean a professional jester. It is probably connected with *blaterones* which, Gellius (i, 15) says, was a term applied by the ancients to foolish chatterers. Perhaps there is an allusion to the *balatus* of Atticus (cf. iii, 1): *Quoniam satis balasti, inquit, o Faustule noster.*

[2] *Hoc.* The old form of *Huc*—common in Plautus. Vergil uses it (Aeneid, viii, 423): *Hoc tunc Ignipotens caelo descendit ab alto,* where Servius remarks, *Nam Verrius Flaccus . . . dicens in adverbiis pro "u," "o" plerumque maiores ponere consuetos: et sic pro "huc" "hoc" veteres dicere solebant.*

[3] *Flagra.* Used in the punishment of runaway slaves, etc.

[4] *Laribus.* The reading of the MSS. is *Palibus.* Ursinus conjectures *Palilibus,* Schneider *Pali.* Neither word makes very good sense. Keil gives *Laribus,* and quotes a fragment (Nonius, 538) of Varro to the effect that "asses" were paid to the Lares. But this was in the case of brides. And even granted the general custom, for which there is no evidence, why is Lucienus to pay asses to them?

I would with diffidence suggest *Palicis.* The *Palici* (cf. Servius, Aen., ix, 584, and Diodorus Siculus, xi, 89) were two benevolent deities who presided over agriculture (though the pseudo-Servius says *Nauticos deos Varro appellat*) and were worshipped in a temple not far from Mount Aetna and the river Synaethus. This temple gave asylum to runaway slaves, who were not given up to their masters until lenient treatment had been assured by an oath taken by the latter. The word *Palicus* was popularly derived from πάλιν and ἵκειν to come back. Now, owing to the loss of some of this book, we do not know precisely the scene of the dialogue; the time was when Varro, as legatus of Pompey in the war against

in case they try to get me to pay them over again?
2 Atticus said to Murrius, Tell your friend, as[1] you go, what has been said and what remains to be said, so that he may come primed for his part, while we in the meantime add to the play the second act, the subject of which is the larger cattle. In which, said Vaccius, there is a part for me, as there are cows (*vaccae*) in it. I will therefore proceed to tell you what knowledge I have gained about cows and oxen, so that if there is any point a man does not know he may learn it from me, and if he does know may
3 note whether I make any mistakes. Be careful, Vaccius, said I, what you are about, for in the matter of stock-raising the ox should hold the place of honour—particularly in Italy, since that country is supposed to have derived its name from cattle. For ancient Greece, as Timaeus[2] writes, used to call

the pirates, commanded a detachment of ships. The place then may well have been somewhere in Sicily—possibly at Catana, not far from which was the temple of the Palici. If we read *Palicis*, then, the passage makes fair sense.

Lucienus on going says that he will return bringing the whip for the beating which he has deserved through being absent. He goes as a runaway slave to the Palici to claim their protection after paying a few pence for sacrifice, and then to return sure of lenient treatment from his masters. Cf. Vergil, Aeneid, ix, 585: *Pinguis ubi et placabilis ara Palici.*

[1] *Eadem.* An adverb common in Plautus (Trin., 577, etc.) who always uses with it the Future or Future-Perfect. It means "at the same time."

[2] *Timaeus*, 352-256 B.C. A Greek historian whose principal

bulls *itali*; and it was owing to the great number and beauty of these, and to the breeding of bullocks (*vituli*) in this country that the name of Italy was bestowed upon it. Others have written that it was because of a famous bull called Italus which Hercules pursued into Italy.

The ox, I say, is the comrade of man in the
4 labours of the field, and the servant[1] of Ceres, and the ancients were so firmly determined to guard his life that they punished with death[2] any one who

work was a history of Sicily from the earliest times down to 264 B.C. Of this only a few scraps remain.

Cf. Gellius, xi, 1: *Timaeus in historiis . . . et M. Varro in Antiquitatibus R. H. terram Italiam de Graeco vocabulo appellatam scripserunt quoniam boves Graeca vetere lingua ἰταλοί vocitati sint.* Curtius (Gk. Etym., i, p. 257) remarks: "This etymology is splendidly confirmed by 'Viteliú' (Italy) in the inscription on Oscan coins." Probably the word is connected with (*f*)ἔτος, a year, and its root meaning is "yearling."

[1] *Cereris minister.* At Eleusis, the most ancient seat of the worship of Demeter, certain sacred cattle were kept (their keepers were called βουζύγαι—οἱ τὰς ἱερὰς βοῦς ἐν Ἐλευσῖνι ἀροτριούσας τρέφοντες (Schol. ad Aristidem), and by them the Rharian plain was solemnly ploughed every year in memory of the first sowing of wheat by Demeter or Triptolemus.

[2] *Capite sanxerint.* Pliny (viii, 4, 5) and Valerius Maximus (viii, 1) tell how a man who had killed an ox was *damnatus a Populo Romano die dicta . . . actusque in exilium tanquam colono suo interempto.* Columella (praef. § 7 to Bk. vi) says that "at Athens in Attica he is called the servant of Ceres and Triptolemus, shares the sky with the brightest constellations, is the most hard-working comrade of man in the tilling of the soil, and was so venerated by the ancients that it was as much a capital offence to have slain an ox as a citizen." In the age

slew him. To this fact Attica and Peloponnesus are witnesses. For it is to the ox that Buzuges[1] at Athens and Homogyros[2] at Argos owe their fame. I know well, answered Vaccius, the dignity of oxen, and that many great things are called after them, as *busycos* (bull-fig), *bupaida* (bull-boy, lump of a boy), *bulimos* (bull-hunger), *boopis* (cow-eyed, great-

of iron men took to eating the domestic ox (cf. Aratus Phaenom., 134) which Cicero translates thus:

Ferrea tum vero proles exorta repente est
Ausaque funestum prima est fabricarier ensem
Et gustare manu vinctum domitumque iuvencum.

Vergil (Georg., ii, 537) imitates Aratus:

Et ante
Impia quam caesis gens est epulata iuvencis.

Aristotle in the Oeconomica calls the ox "the poor man's slave"—*βοῦς ἀντὶ οἰκέτου τοῖς πένησίν ἐστιν.* At Athens he was not allowed to be sacrificed on the ground that "he was a cultivator and shared in the toil of men." *γεωργός ἐστι καὶ τῶν ἐν ἀνθρώποις καματῶν κοινωνός.*

[1] *Buzuges* was he who first yoked oxen—Triptolemus or Epimenides. Afterwards it was the name of the keeper of the sacred cattle at Eleusis or Athens.

[2] *Homogyros.* Both these statements Varro took from a previous book of his, De gente populi Romani. His words —or the substance of them—are preserved for us by Saint Augustine (De Civ. Dei, xviii, 6): *Qui honor . . . delatus est homini privato et fulminato cuidam* Homogyro *eo quod primus ad aratrum boves iunxerit* (Keil). There is another passage (Isidor. Or., xvii, 1), which seems to have escaped the commentators: *Primum ad aratrum bovis iunxisse ferunt quendam privatum hominem et fulminatum nomine* Homogirum. *Quidam autem Osirim dicunt huius artis esse inventorem, quidam Triptolemum.*

eyed), and that a kind of large grape is called
5 *bumamma* (cow's udder). I know, too, that Jupiter chose to assume the form of a bull when, being in love with Europa, he carried her from Phoenicia across the sea; that it was a bull who saved Neptune's children by Menalippa when they were babies from being trampled in a cattle-pen under the feet of a herd; and, lastly, that from its putrid corpse spring the sweet bees, mothers of honey—whence the Greeks call bees *bugenes* (βουγενεῖς = ox-born). We have it recorded in writing that an ox spoke plainer Latin than did Hirrius[1] at Rome in the Senate after he had been elected praetor.

But do not be uneasy, I will give you as much satisfaction as the man who wrote the "Bugonia"[2] could have done.

[1] The text here is hopelessly corrupt. No plausible emendation has ever been proposed—and no story concerning either Plautius (?) Hirrius or an ox is known which seems to apply even remotely to anything in the text. *Planius* might easily have been corrupted to *plautius*. I have translated *planius*. The speaking of an ox was a common prodigy. Cf. Livy, xxxv, 21: *Et, quod maxime terrebat, Consulis Cn. Domitii bovem locutum: Roma Cave tibi*, etc. Cf. Pliny, viii, 45: *Est frequens in prodigiis priscorum bovem locutum: quo nuntiato senatum sub dio haberi solitum.*

[2] *Bugoniam.* Keil quotes Hieronymus in Euseb. Chron.: *Eumelus, qui bugoniam et Europam . . . composuit*, and thinks with Scaliger and others that the *bugonia* was a poem in praise of bees. There seems to be no evidence to support this, and βουγονία must surely mean "the begetting of oxen" (cf. θηλυγονία, θεογονία, etc.), not the birth (of bees) from oxen.

The words are, of course, connected with § 2: *Vide quid*

6 Firstly, in the matter of horned cattle there are four terms to denote differences of age—first, calves, secondly, bullocks; thirdly, young bulls; fourthly, old bulls. Differences in sex are indicated in the first case by the names calf, she-calf; in the second, bullock, and heifer; and in the third and fourth by the words bull and cow. A barren cow is called *taura*,[1] one in calf, *horda*.[2] Hence in the calendar one day is termed *hordicidia*[3] because cows in calf are then sacrificed.

7 He who means to buy[4] a herd of cattle must first

agas, inquam, Vacci, when Varro hopes that Vaccius may be able to perform what he promises with so light a heart. To this Vaccius here answers: "Don't be uneasy," etc.

[1] *Taura.* Schneider thinks that this means *hermaphrodite*, comparing Aristotle (De Gen. Anim.), where the word τράγαινα (τράγος) signifies hermaphrodite goats. But Festus and Servius (Aen., ii, 140) both translate it *sterilis vacca.*

[2] *Horda.* Varro in the Lingua Latina spells these words (*horda*, *hordicidia*, etc.) with an initial F not H. Cf. L. L., vi, cap. 3: *Fordicidia a fordis bubus. Bos forda quae fert in ventre. Quod eo die publice immolantur boves praegnates in curiis complures, a fordis caedendis Fordicidia dicta.* This use of f where Latin has h is dialectal (Sabine?). Cf. *fasena*, *fircus*, *faedus*, *fordeum* for *harena*, *hircus*, etc.

[3] *Hordicidia.* A festival in honour of Tellus held at Rome 15th April, when pregnant cows were sacrificed. The ashes of the exsected calves (burned, on the day when the *hordicidia* was celebrated, by the Senior Vestal) were used later at the Parilia—21st April—in the lustration of the city and people.

[4] *Qui gregem*, etc. This description, which corresponds with that given by Columella (vi, 1, 3, and vi, 21) is taken from the work of Mago the Carthaginian. Varro's words seem to be almost literally translated by the Geoponica, xvii, 2.

see that its members are young and fresh, and fitted to give increase rather than incapable[1] of bearing; that they are well put together, sound of limb, in shape square and of great size, with blackish horns, wide foreheads, big black eyes, and hairy ears; they should have flattened jaws and be somewhat snub-nosed; they must not be hump-backed[2] but have a slightly concave spine[3]; the nostrils should be well opened, the lips blackish, the neck thick
8 and long with hanging dewlap, body well ribbed up, shoulders broad, buttocks[4] of good size with a long tail reaching to the heels, and ending in a tuft of slightly curly hair. The legs[5] should be

[1] *Expartae.* The word occurs nowhere else. Scaliger derives it from *ex* and *partus*, and quotes certain "old glosses" which he had in his possession: *exparta—partu vacua.* The reading Victorius found in his MS. is *ex parte.* That found in all editions before him is *expertae* which, pace Scaliger, seems perfectly intelligible if taken closely with *integrae.* The preference is to be given to cows which have never had calves (*integrae ad*, etc.) over those which have already had some experience (in bearing young). Keil follows Scaliger wrongly, I think.

[2] *Ne gibberae.* This is the μὴ κυρτάς of the Geoponica. κυρτός)(κοῖλος in the Mathematicians convex)(concave.

[3] *Spina.* Columella (*loc. cit.*) has *dorso recto planoque et* subsidente.

[4] *Bonis clunibus.* Columella (*loc. cit.*) has *clunibus rotundis.*

[5] *Cruribus potius.* The Geoponica (*loc. cit.*) make the meaning of this passage quite clear: Τὰ σκέλη ὀρθά, στερεὰ παχύτερα μᾶλλον ἢ μακρότερα, μὴ παρατριβόμενα πρὸς ἄλληλα, πόδας ἐν τῷ βαδίζειν μὴ πλατυνομένους ἄγαν, μηδὲ χηλὰς διεσταλμένας, τοὺς ὄνυχάς τε λείους καὶ ἴσους. βύρσαν εὐαφῆ καὶ μὴ ἀπεξυλωμένην.

straight and short rather than long, the knees somewhat prominent with a good distance between them, the feet narrow, and not spreading out as the animal walks, the cleft in the hoof not wide, and the two toes smooth and even. The skin must not be harsh or hard to the touch. The best colour[1] is black, then red, then dun, then white—for oxen of the last colour are the most delicate, as those of the
9 first mentioned are the hardiest. Of the two middle[2] colours the first is more common than the second, both of them than either black or white.

The males as well ought to be (1) of a good

[1] *Colore potissimum.* Columella (vi, 1, 1) mentions the difficulty of laying down rules for the buying of cattle owing to the great number of breeds to be found, each of which has its own excellence—*e.g.*, the Asiatic, Gallic, Epirot, and Italian kinds. And the Italian kinds differ greatly. The Campanian ox is small and white, that of Umbria white and of huge size. There are also red Umbrians which are as good-tempered as they are big-bodied. The Etrurian and Latian oxen are close-knit but strong; those bred on the Apennines are the hardiest of all, will indeed stand any amount of hardship, but are ugly to look at.

[2] *De mediis duobus.* Keil expunges the *in eo prior* of the MSS.

Zahlfeldt (Qu. Crit. in Varr., R.R., 32) conjectures *crebrior*, which seems satisfactory. Something of the kind is needed, else the construction is harsh even for Varro.

In the Geoponica (*loc. cit.*) the best colours are thought to be the various shades of red (*τὰς τοῖς χρώμασι ξανθιζούσας*); cows with black legs are highly thought of (*τὰ σκέλη μέλανα ἔχούσας*). Pliny (viii, 48) says that both black and white oxen are bad workers.

breed and their shape must be carefully looked to, as the progeny reproduce the qualities of the parents, and (2) the place also where they were born is a matter of moment. In Italy, for example, those of the Gallic[1] breed are mostly good workers,
10 while those of Liguria are of small account, and those of Epirus[2] across the sea surpass not only the cattle of all Greece, but those of Italy as well. Some people, however, use Italian cattle for sacrifice, and reserve them for solemn supplications of the gods, for—so they say—these are more suitable than others, owing to their great bulk. For religious functions they certainly are to be preferred, because of their majestic[3] size and striking colour. There is also another reason for keeping them for sacrifice, white cattle being rarer in Italy than they are in Thrace—near the Melanic[4] gulf—where few of any other colour are to be found.

11 When we are buying oxen which have been broken in, the warrant required is as follows: "Do you guarantee that these oxen are sound and that

[1] *Gallici.* I.e., *Piceni et Circumpadani.*

[2] *Epirotici.* Cf. Pliny (viii, 45): *In nostro orbe Epiroticis laus maxima.* Aristotle (Hist. A., viii, 7) speaks of βοῦς πυρρίχας ἐν τῇ Ἠπείρῳ. The excellence, he says, of the breed was due to the fact that they were kept from the bull for nine years.

[3] *Dignitatem amplitudinis.* Varro refers no doubt to the white Umbrians; cf. Columella, vi, 1, 2: *Umbria* (*progeneral*) *vastos et albos.* White bullocks were sacrificed on the occasion of a triumph; cf. *inter alios,* Claudian, speaking of Clitumnus, *Candida quae Latiis praebent armenta triumphis.*

[4] Μέλανα κόλπον. Now the Gulf of Samos.

the buyer incurs no liability[1] for damage done by them?" In buying them unbroken it is: "Do you guarantee that these oxen are sound in the proper sense of the word, come from a sound herd, and that the buyer incurs no liability for damage done by them?" Butchers who buy an ox for cutting up, if they adopt the Manilian forms, use rather more words than these, while those who buy for sacrifice do not as a rule exact any guarantee as to the health of the victim.[2]

Cattle are best pastured in clearings where there are shrubs and leaves[3] in abundance. When they

[1] *Noxisque praestari.* Cf. note on ii, 4, 5. The *-ce* in *illosce* is "deictic," "those before our eyes."

[2] *Non solent stipulari.* Because the priests themselves applied tests "offering the bulls barley, the he-goats pulse (ἐρεβίνθους). Refusal to eat was interpreted as a sign of ill-health. The test for a she-goat was cold water" (Plutarch, Orac. Defect.).

[3] *Fros multa.* Cf. Columella (vi, 3, 6): "From this time (1st July) to 1st November—that is, through the summer and autumn—they may be fed on leaves. The best for the purpose are those of the elm, the ash, and the poplar; the worst those of the holm oak, the oak, and the laurel. These, however, you are obliged to use after summer as the others then fail. Fig leaves may also be given."

The number of things used as food for cattle is astonishing. Columella (*loc. cit.*) mentions: peas, beans, vetches, lupines, ocinum, barley, wheat, straw, grass, hay, acorns, leaves, grape refuse—which he specially recommends as having the virtues of both meat and wine, cytisus. Cato (54) mentions in addition bean bran and ivy leaves. Much attention was given to the health and feeding of the working ox. Cato (54) says: *Nihil est quod magis expediat quam boves bene curare.*

spend the winter near the sea, they are driven off at the time of the great heats to wooded mountains. For breeding purposes, the following is my usual
12 practice. For one month before the admission of the bull, the cows must not get their full measure[1] of food and drink, for it is thought that they conceive more readily when thin. On the other hand, two months before that time I fatten up my bulls with grass, chaff and hay, and separate them from the cows. I keep the same number of bulls as does Atticus, that is, for seventy[2] breeding cows, two bulls, one of them a year, the other two years old. This I practise just about the rising of that constellation which is called by the Greeks λύρα, by our countrymen "fides" (the lyre). When the busi-
13 ness is over I drive back the bulls to the flock. One can tell whether the cow has conceived a male or a female by noticing during the act of coition on which side the bull comes down. If it is a male he goes more to the right, if a female to the left. Why this is the case, said he to me, you readers of Aristotle[3] must determine. Impregnation should not take place before the animals are two years old,

[1] *Se impleant.* Cf. Col. vi, 24, 3: *Ne eas steriles reddat nimia corporis obesitas.*

[2] *LXX.* Columella (vi, 243) says one to fifteen. *Unum marem quindecim vaccis sufficere abunde est.* Possibly XXL or XXX should be read, which gives the same proportion as Columella and Pliny, viii, 45 (as amended by Pintianus): *Implent et singuli quindenas eodem anno.*

[3] *Aristotelem.* De Gen. An., v, and vi. Cf. Col. vi, 24, 3, Pliny, viii, 45, and Geoponica, xvii, 6.

so that they may be three when they calve—if they are four years old, so much the better. Most cows go on bearing for ten years, some even longer. The most suitable time for the beginning of pregnancy is during a period of forty or a few more days from the rising of the Dolphin;[1] for those which have so conceived calve at the most temperate time of the
14 year, as cows are pregnant ten months. I have found recorded a strange fact about them: if they are covered by a bull immediately after he has been castrated they conceive.[2] They should graze in green and watery places. Care must be taken not to let them stand too near one another, and that they do

[1] *Delphini.* The Geoponica (xvii, 10, 3) fix the time—in the early part of June—*ὥρα δὲ πρὸς ὀχείαν ἡ ἀπὸ δελφῖνος ἐπιτολῆς, τουτέστι περὶ τὰς ἀρχὰς τοῦ Ἰουνίου μηνός, ἕως ἡμερῶν μ'* (40). Columella (xi, 2, 45) says that the Dolphin rises *in the evening* on 10th June. He (vi, 24, 1) gives July as the proper time. Pliny, in a chapter which borrows largely from Varro (viii, 45), has *Coitus a Delphini Exortu ad* [sic] *pridie Nonas Januarias diebus xxxx.*

I have no doubt that Pliny wrote *Coitus a D. Exortu ad dies xxxx*, and that the rest is the gloss of an ignorant scribe who wished to explain *Delphini exortus* and, remembering another passage of Pliny (xviii, 26): *Pridie Non. Jan. Caesari Delphinus matutino exoritur*, used it as a note which was afterwards inserted in the text. Or it may have been a slip made by Pliny himself—using his commonplace books carelessly, and confusing the evening rising, which Varro obviously means, with the morning rising of the Dolphin. Keil and others notice the discrepancy but do not explain how it—probably—arose.

[2] *Concipere.* Cf. Aristotle (De Gen. An., i, 4): *καὶ ἤδη ταῦρός τις, μετὰ τὴν ἐκτομήν, εὐθέως ὀχεύσας ἐπλήρωσε, διὰ τὸ μήπω τοὺς πόρους ἀνεσπάσθαι.*

not gore or run against one another. And, as in summer gad-flies[1] generally annoy them, and a kind of small gnat breeds under their tails, some people, to prevent this annoyance, keep them shut up in pens. Leaves or some substitute should be strewn on the floor of their stalls that they may rest more comfortably. In summer time they must be
15 driven twice to the water, in winter once. When they begin to breed, fresh fodder (for them to taste as they go out) should be kept close to the stalls, for their appetite becomes capricious at this time. Care must also be taken that the place to which they return be not cold, for cold as well as hunger makes them grow thin.

16 In the rearing of cattle proceed as follows. The sucking calves must not sleep with their mothers,

[1] *Tabani. Tabanus*, the popular name for the Greek οἴστρος, the proper Latin equivalent being *asilus*. At least so says Isidore (xii, 8, last paragraph): *Oestrum animal armentis aculeis permolestum. Oestrum autem Graecum est, quod Latine "asilus," vulgo* tabanus *vocatur.* The word is still in use in Italian, *tabáno* meaning a "back-biter," and *tafáno* a gad-fly.

Crescentius, paraphrasing this passage (ix, 65, quoted by Schneider) puts for the *bestiolae minutae, Zentalos Muscas. Zentalos* is no doubt the modern Italian *Zanzara*, an onomatopoeic word meaning gnat. If the text, however, be correct, Varro would seem to refer to the eggs laid by the *tabanus* under the tails of the oxen.

The Geoponica (xvii, 7) advise the sprinkling of the pastures with a decoction of laurel berries as a means to get rid of the gad-flies, "which run away because they hate it" (διὰ τὴν ἀντιπάθειαν).

for otherwise they are trampled on by them. They should be taken to the mother early in the morning and again when they come back from the pasture. When the calves are grown big, keep up the strength of the dams by giving them green fodder in their stalls. In the case of these, as generally of all stables, a flooring of stone or some other material must be laid down to prevent the hoofs from rotting. From the autumnal equinox onwards they graze
17 with their dams. Bulls should not be castrated before they are two[1] years old, as otherwise they do not easily recover from the operation. Those which are castrated after that age grow up hard to manage and useless for purposes of work. Again, as is the case in all other flocks of domestic animals, every year a choice should be made of the cows to be kept, and those which it is not desirable to keep[2] must be got rid of, as they take up the room of those which are able to yield increase. Should any cow have lost a calf you must put under her calves whose mothers give them too little milk. To six-months-old calves wheaten bran, barley-flour, and young grass is given, and they are made to drink night and morn-
18 ing. Many directions concerning their health I

[1] *Ante bimum.* Aristotle (H. A., ix, 50) says: "when they are a year old," ἐνιαύσιοι.

Mago states, according to Columella (vi, 26, 1—where two ways of performing the operation are described) *vituli dum adhuc teneri sunt.*

[2] *Reiculae.* Cf. note on ii, 1, 24. The Geoponica (xvii, 10) give as the equivalent of this word "the barren and weakly cows and those of advanced age."

make my herdsman[1] copy out from Mago's books, and I take care that he reads one or more of them frequently. You must so regulate the number of bulls and cows as to have two of the former to sixty of the latter—one a year old, the other two. Some maintain either a greater or less proportion: for example, at Atticus's there are two bulls where there are seventy breeding cows. Different people have herds of different sizes; some, like myself, think a hundred[2] a good average number. Atticus has 120, as has Lucienus.

CHAPTER VI

OF ASSES

1 THUS Vaccius. Whereupon Murrius, who had returned with Lucienus while Vaccius was speaking,

[1] *Armentarium . . . ut legat curo.* A common Greek construction much used in these books, cf. ii, 9, 15, iii, 10, 4, and iii, 16, 28, which last is an exact parallel to this passage, *Aquam mulsam in vasculis prope ut sit curant. Aliquid* here Keil would take as an adverb. The adverbial use of *aliquid* and *nihil* is of course common enough, but here it seems simpler to connect *aliquid* with *exscripta.* Besides, it would be difficult to quote an example of the so-called adverbial use (it is really a cognate accusative) of *aliquid* resembling this at all points.

[2] *Centenarium.* Varro (ii, 4, 22) makes the same statement about a herd of pigs: *Sed ego modicum puto centenarium.*

remarked: I choose as my topic asses,[1] for my native place is Reate, where the best and largest are found. From the Reatine breed I have bred foals there and have sold them more than once even
2 to Arcadians themselves. Well, he who wants to make a really good herd of asses must first take care to choose both males and females of the right[2] age, so that both sexes may be a source of profit for as long as possible; he must have them strong, handsome at every point, stout of limb, of good breed—that is, coming from those places where the best are found. Thus do those who in the Peloponnesus buy from Arcadia[3] rather than elsewhere, and in Italy from the Reatine land. For it does not follow, you know, because the best "floating"[4] lampreys are

[1] *De asinis.* Pliny (N. H., viii, 43) says that they were a source of very great profit: *Quaestus ex iis opima praedia exsuperat*, that they were useful for carting, sometimes even for ploughing, but that they were especially valuable as the sires of mules.

[2] *Bona aetate.* In Plautus frequently *bona aetas* means youth, and *mala aetas* old age. Cf. Aulularia, i, 1, 4.

[3] *Arcadia.* Isidore (xii, 1) speaks of the asses found there as *alti et magni.*

[4] *Murenae flutae.* Varro (quoted by Macrobius, Sat., iii, 15, 7) says that "*murenae flutae* in Sicily can be caught by the hand, as owing to their fatness they *float* on the surface of the water." They are the μυραῖναι πλωταί of Athenaeus. This was the most esteemed kind of lamprey, cf. Col., viii, 17, 8: *Item flautas, quae maxime probantur, muraenas.* They were "preserved" by Roman epicures in artificial fish-ponds into which the sea flowed. Pliny (viii, 55) tells how Hortensius,

to be found in Sicilian waters, and the "helops"[1] in the neighbourhood of Rhodes, that these fishes, of the same quality and size, exist in every sea.

3 Of asses there are two kinds, the one wild, called "onagri," such as are found—many flocks of them—in Phrygia and Lycaonia, the other tame, as are all those of Italy. The "onager"[2] is suitable for

the great rival of Cicero, loved a lamprey so much that he wept when it died!

[1] *Helops.* Pliny (ix, 17) says that this fish was the same as the *acipenser* (sturgeon?), "which was the most famous of all fishes amongst the ancients," and that it was the only one the scales of which turned towards the head (*unus omnium squamis ad os versis*). Varro (ἐπὶ τῇ ταφῇ μυρόν) calls it *multinummus*,

> *Nec multinummus piscis ex salo captus*
> *helops;*

but in Pliny's time it was not of much account, rare though it was—*nullo in honore est . . . cum sit rarus inventu* (*loc. cit.*). Columella (viii, 16, 9) says that it fed only in the depths of the Pamphylian Sea (Gulf of Adalia), which is a couple of hundred miles from Rhodes, though in the same latitude. *Non enim omni mari potest omnis esse, ut helops qui Pamphilio profundo nec alio pascitur.*

[2] *Onagrus.* The Geoponica (xvi, 21) repeat this statement of Varro. Columella (vi, 37), however, seems to contradict it indirectly, for, speaking of the progeny of a he-ass and a mare, he says: "*Neque tamen ullum est in hoc pecore aut animo aut forma praestantius quam quod seminavit asinus. Posset huic aliquatenus comparari quod progenerat onager, nisi et* indomitum et servitio contumax, silvestris more, strigosum patris praeferret habitum." He goes on to speak of the onager's swiftness and strength, and recommends the breeder to put the male offspring of an onager and a mare to a mare, as in

breeding purposes, as when wild he may readily be tamed, and once tamed never becomes wild again. As the offspring resemble their parents, both sire and dam must be chosen carefully, both must be fine animals. In trading, change of ownership is effected—just as in the case of other domestic animals—by purchase and delivery; and a guarantee that their health is good and that they have done no damage for which the purchaser may be
4 held responsible is usually required. Their proper food is spelt and barley bran. The male is put to the female before the solstice, that the latter may foal the next year at the same time; for she-asses reproduce their kind twelve months after conception. During pregnancy they are relieved from work; for toil makes the womb produce inferior offspring,[1] whereas the male is not kept from work, as he deteriorates through lack of it. As regards breeding, the practice is much the same as with horses. After birth, the foals are not taken from the mothers for a year; the next year they are allowed to be with them

the third generation the wild nature of the onager would be mitigated (*per gradus infracta feritate*).

For their swiftness cf. Xenophon, Anab., i, 5. The Greeks found it difficult to catch them, for they ran much faster than horses. Some, however, they did catch, using relays of horses. The flesh was found to resemble that of the stag, but it was more tender.

[1] *Natio.* Festus (*ad verbum*): *In pecoribus quoque bonus proventus feturae bona natio dicitur.* Cicero frequently uses the word contemptuously, as Mur., 33, *tota natio candidatorum.* Pro Sext., 44, *natio optimatium.*

at night, and are kept loosely tied with a halter, or something of the kind. With the third year one begins to break them to the work for which one means to use them.

5 There now remains for discussion the number—but of asses herds are not made, with the exception of those which bear burdens, as they are mostly drafted off to the mills or to work on the farms when there is carting to be done, or even to the plough where the soil is light, as in Campania. What herds of asses there are generally belong to traders, such as those who convey, by means of pack-asses,[1] oil, wine, corn, and the like, from the country about Brundisium or Apulia to the sea coast.

[1] *Asellis dossuariis.* Cf. Velius Longus, 79, 4: *Sic et dossum per duo S.* The *clitellae* used in loading asses or mules were perhaps a pair of paniers, though I can find very little evidence for the fact. Festus (*ad verb.*) has *eae quibus sarcinae Conligatae mulis portantur*, and says that a part of the Via Flaminia—descending, then ascending—was called Clitellae. On Trajan's Column there is a picture of a mare with *clitellae* loaded with *amphorae*, and I can find no resemblance to a pair of paniers. These *asini dossuarii* were called in Greek ὄνοι κανθήλιοι. Cf. Scholiast or Arist., Vesp., 170, who quotes Xenophon and Polybius. From the passage quoted from Polybius it is evident that the word κανθήλια means the pack-saddle.

CHAPTER VII

OF HORSES AND MARES

1 THEN said Lucienus, I too will take my turn, throw open the barriers,[1] and let my horses go, and not the males only, which I, like Atticus, keep as stallions, one to every ten mares.

The brave Q. Modius Equiculus[2] used to think as much of mares as of horses even for military ser-

[1] *Carceres.* These were stalls or vaults in the circus from which in the chariot races the horses with their chariots started. They were closed by bars, or more probably by doors of open woodwork (*cancelli*), which were thrown open simultaneously when the signal for beginning the race was given.

There is a marble in the British Museum which figures very clearly these *cancelli*. Here they are folding doors which open inwards.

[2] *Q. Modius Equiculus.* Nothing is known of him. Is he a Mrs. Harris? The words which follow in Keil's text, *vir fortissimus etiam patre militari*, are absurdly irrelevant, and need emendation. I have translated Ursinus's conjecture, *etiam in re militari*, which makes good sense. It is difficult to understand, however, if this be the true reading, how the corruption arose. I would suggest *etiam a parte militari* (*etia a parte*). The second *a* a copyist would naturally omit, and *parte* might easily have been changed to *patre*.

Pliny (viii, 42) mentions the use of mares in preference to horses in war. *Scythae per bella faeminis uti malunt, quoniam urinam cursu non impedito reddant*, and the best horses which went to the war against Troy were the mares of Pheretiades, "swift as birds" (Iliad, ii, 763).

vice. Those who wish to keep herds of these horses and mares, as some do in the Peloponnesus and Apulia, must first consider the question of age, about which the following directions are given: We take care that they (the mares) are not less than
2 three or more than ten years old. The age[1] is inferred of horses, and generally of all animals with undivided hoofs, and even of horned animals, from the fact that a horse at thirty months first sheds the

[1] *Aetas cognoscitur.* As in the first book Varro used Theophrastus as his principal authority, so in this Aristotle. The latter discusses (H. A., vi, 22) this matter of a horse's teeth thus: "A horse has forty teeth; when thirty months old he sheds the first four (two upper, two lower); when a year has gone by he sheds in the same way other four (two upper, two lower); and again when another year has passed, other four in the same way; when four years and six months have elapsed he sheds no more."

The Geoponica (xvi, 1) give more details: "At thirty months the foal begins by shedding its front teeth which we call 'incisors'—the two middle ones of each jaw. At the beginning of the fourth year, he loses two on one side (one from each jaw) and two on the other. Then the canine teeth appear. At the commencement of the fifth year he loses the rest—upper and lower—one from each side [*sic*]. But those which are now growing are hollow. When he has reached the sixth year the hollows of the first begin to fill up, and when he is seven years old he has his full number of teeth, none of which is hollow. And when this has happened it is no longer easy to tell the age."

Palladius and Columella do not deserve to be quoted. As to the facts Schneider vouches for the accuracy of Varro's statements, and tells us that when he was writing his commentary on the passage, he (Schneider) had a large number of horses' skulls in front of him!

middle teeth, the two upper and two lower. As they enter upon their fourth year of life they shed others in like manner—the four teeth next those which they have already lost—and the so-called
3 canine teeth begin to grow. Similarly, at the beginning of the fifth year, the horse loses in like manner two, and, whereas those which are growing again are hollow, in the sixth year they are filled in, and with the seventh year he generally has all his teeth to the full number grown again. They say that you cannot tell the age of those that are older, only when the teeth have become prominent[1] and the eyebrows gray, with hollows under them, they say—judging from this—that the horse is sixteen years old.

4 As to type: they should be of moderate size, for if excessively big or small they do not look well. The mares should have broad quarters and bellies. Such horses as are destined for stud purposes you

[1] *Dentes brocchi.* Cf. Columella (vi, 29, 5): *Nec postea quot annorum sit, manifesto comprehendi potest. Decimo tamen anno tempora cavari incipiunt, et supercilia nonnumquam canescere, et* dentes prominere.

Brocchus or *broncus* is defined by Nonius (Bk. i, *ad verb.*) as *producto ore dentibus prominentibus.* He cites Lucilius, Bk. III: *Broncu' Bovillanus dente adverso eminulo, hic est rinoceros.*

The word is found also in a fragment of Plautus, quoted by Festus: *Aut varum aut valgum aut compernem aut paetum aut brocchum filium.* In both these cases it describes persons, while Varro here and ii, 9, 3 uses it of the teeth themselves. Crescentius, not understanding it, translates *brocchi* by *plicati* (bent!).

should choose big of body, shapely, with no part
5 of the body out of proportion. You can guess from the foal the kind of horse[1] he is going to be—[a good one] if his head is small, if he has well-proportioned limbs, black eyes, well opened nostrils, ears leaning[2] forwards, the mane abundant, in colour leaning to dark, and slightly curling, with rather fine hair falling to the right side of the neck, the chest broad and full, broad shoulders, belly of moderate size, loins sloping downwards, broad shoulder-blades, the spine, if possible, double,[3] failing this not projecting,[4] tail abundant and curling slightly, the legs straight, symmetrical, and turning rather inwards than outwards, the knees round and small, and the hoofs hard. He should have the veins visible all over his body, for a horse of such a kind can readily be treated[5] when he is ill.

[1] *Qualis equus.* Compare with this description of the perfect horse Columella's (vi, 29, 2), Vergil's (Georg., iii, 75-88), that of the Geoponica (xvi, 1)—all of which follow Varro closely.

[2] *Auribus adplicatis. Adplicatus : replicatus : : aduncus : reduncus.* Columella (*loc. cit.*) has *brevibus auriculis et adrectis*, the Geoponica (*loc. cit.*) τὰ ὦτα προσεσταλμένα, Palladius *breves et argutas* (flickering—mobile).

[3] *Spina duplici.* Cf Georg., iii, 87: *At duplex agitur per lumbos spina.* In a well-conditioned muscular man or horse the spinal vertebrae are not visible, as the spine lies between two ridges formed by the dorsal muscles, and is covered by their muscular attachments.

[4] *Non exstanti.* Cf. *ne gibberae* of ii, 5, 7.

[5] *Ad medendum.* In the treatment of sick animals bleeding was as much used by the ancients as it was in the Middle Ages

6 The stock they come from is of great importance, for the breeds are many. So it comes about that famous horses are called after their districts, as in Greece, the Thessalian horses from Thessaly; in Italy the Apulian from Apulia, and the Rosean from Rosea. It is a sign that a horse will be a good one if he strives with his fellows in the herd for supremacy in running, etc., or if, when the herd has to ford a river, he is among the first[1] to advance, and does not keep looking back at the others. The buying of horses is much the same as that of asses and oxen, change of ownership being effected with the same forms as those contained in the Manilian Actions.

7 The best food for horses is grass when they are on the meadows, and hay when they are in stables or stalls. After they have foaled, barley should be added to the food of the mares, and water given them twice a day. In breeding horses the male should first be put to the mare some time between

for sick men. Blood was let from veins. It was therefore an advantage if they were visible and so readily found.

[1] *In primis.* Cf. Georg., iii, 76:

> *Continuo pecoris generosi pullus in arvis*
> *Altius ingreditur, et mollia crura reponit:*
> *Primus et ire viam et fluvios tentare minaces*
> *Audet, et ignoto sese committere.*

Columella (vi, 28) says that the colt should be "bright and full of fun, unafraid, not frightened by unaccustomed sights and sounds. He should run in advance of the herd and sometimes romp and race with his companions and beat them, or jump a ditch, or cross a bridge or river without hesitation."

the vernal equinox and the solstice, so that birth may occur at a suitable[1] season—for they say it takes place on the tenth day of the twelfth month. Foals born after term[2] have generally some defect,
8 and prove useless. When the time of year has come the horse should be put to the mare twice a day, morning and evening, by a groom—so the man who has this duty is called—for when he helps, the mare having been tied up, the operation is more quickly performed, and the horse does not, through too great excitement, emit his seed to no purpose. The point of sufficient intercourse is indicated by the mares themselves, as when it is reached they repulse the male. If a distaste is shown for his work, the heart of a squill is pounded in water until it has the consistency of honey, then with this the natural parts of the mare are touched at the time of the menstrual flow, while on the other hand the stallion's nostrils are touched with what comes
9 from the parts of the mare. Though incredible, the following fact[3] deserves to be recorded: A stallion

[1] *Idoneo tempore.* *I.e.*, in spring or early summer, when there is abundant pasture, and the mares can supply their young with plenty of milk.

[2] *Post tempus.* Cf. ii, 1, 19: *Dicuntur agni cordi qui post tempus nascuntur.*

In the Geoponica (xvi, 1) this seems to have been misunderstood: *Τὰ δὲ μετὰ τροπὰς θερινὰς κυισκόμενα δυσγενῆ γίνεται καὶ ἄχρεια.* "What are *conceived* after the summer solstice are useless." Unless, indeed, *post id tempus* should be read in Varro's text.

[3] *Quod usu venit.* The same story is told by Aristotle (H. A.

could not be induced to mount his mother; so the groom covered up the former's head, and then brought him up and made him do so. As the stallion was getting off the groom removed the covering from his eyes, whereupon the horse rushed
10 upon him and bit him to death. When the mares have conceived you must see that they are not even a little over-worked, and do not stay in any cold place, for cold is particularly hurtful to them when pregnant. And so in the stables you must not let the ground get wet, and must keep the doors and windows shut, and the mares must be separated by long bars attached to the manger to keep them apart, and prevent them from fighting with one another. A mare in foal must neither be over-fed nor
11 allowed to go hungry. Farmers who admit the male every other year only, say that thus the mares last longer, and the foals are better, and that just as fields which produce[1] every year are sooner exhausted, so too are mares which breed every year. Ten days after birth foals must be driven out with their mothers to graze, lest the dung rot their

ix, 47) of a camel, and a similar one about a horse, but the horse, instead of killing the groom, hurled himself over a precipice.

[1] *Restibiles segetes.* The comparison of a mare to a field is taken from Aristotle (H. A., vi, 22, near the end): *ἕνα δ' ἐνιαυτὸν καὶ πάμπαν ἀνάγκη διαλείπειν καὶ ποιεῖν ὥσπερ νειόν* (fallow land).

Columella (vi, 27, 13) says that "cart mares may bear every year, but thoroughbreds every alternate year only so that the colt may grow strong on its mother's milk and may be able to bear the strain of racing."

soft hoofs. At five months they should be given, when brought back to the stable, barley flour ground up with bran, or any other product of the soil they may fancy.

2 When they have completed their first year they should be given barley and bran as long as they are suckled by their mothers, and should not be weaned until they have turned two years old. When they are standing with their mothers you should occasionally pat and stroke them, so that they may not be terrified when they are separated from them, and for the same reason bits [1] should be hung up in the stable, so that the foals may get used to their appearance and to the jingling of 3 them when they are moved. As soon as the foals have learnt to come to hand, you should sometimes put a boy on their backs, for the first two or three times lying flat on his stomach, afterwards he may sit. This is to be done when the colt is three [2] years old, for then is the time when he grows

[1] *Frenos.* Vergil has made much use of this chapter. Here cf. Georg., iii, 182:

Primus equi labor est animos atque arma videre
Bellantum, lituosque pati, tractuque gementem
Ferre rotam et stabulo frenos audire sonantes.
Tum magis atque magis blandis gaudere magistri
Laudibus, et plausae sonitum cervicis *amare*
Atque haec iam primo depulsus ab ubere matris
Audiat.

[2] *Trimus.* Cf. Vergil (Georg., iii, 190):

At tribus exactis ubi quarta accesserit aestas
Carpere mox gyrum incipiat, etc.

most and puts on muscle. Some say a colt may be broken in after eighteen[1] months, but it is better to defer it until he is three years old, when it is usual to give him mixed green food (farrago[2]), as this purge is especially necessary for horses. It should be given him for ten days, and he must not be
14 allowed to taste any other food. From the eleventh to the fourteenth day give him barley, gradually increasing the amount day by day. To the quantity given on the fourth[3] (fourteenth?) day you must

[1] *Annum et sex menses.* Columella (vi, 29, 4) distinguishes: *Equus bimus ad usum domesticum recte domatur; certaminibus autem triennio expleto. Sic tamen ut post quartum demum annum labori committatur.* So Pliny (N. H., viii, 42): *Diversa autem Circo ratio quaeritur. Itaque cum bimi in alio subiguntur imperio non ante quinquennio ibi certamen accipit.*

The ancients did not race their horses until they were five years old, and they seem to have lasted on that account longer than our race-horses. A riding-horse, Pherenicos (cf. Pindar, Pythia, iii), which was at least fifteen years old, won the Pythian prize, and Pliny (*loc. cit.*) says that racers were sent from the circus to the stud at twenty years, *a circo post vicesimum annum mittantur ad sobolem reparandam!*

[2] *Farrago.* Cf. Vergil (Georg., iii, 205):

> *Tum demum Crassa magnum* farragine *corpus*
> *Crescere iam domitis.*

But, Vergil goes on to say, *farrago* must not be given to them before breaking, or else

> *negabunt*
> *Verbera lenta pati et duris parere lupatis.*

[3] *Quarto.* Ursinus conjectures *quarto decimo*, and Crescentius in his paraphrase says *quartum decimum diem et decem diebus ultra.*

adhere for the next ten days. Then begin to give him moderate exercise, and rub him well with oil after he has sweated. If it is frosty a fire should be
15 put in the stable. As horses are suitable for various purposes—some for military service, some for carrying, some for breeding (as stallions), some for riding or driving—they cannot all be viewed in the same light, or kept in the same way. Thus the soldier chooses, rears, and trains one kind of horse, the charioteer and circus-rider another, nor does the man who wants to turn out horses for carrying,[1] that is, riding or driving[2] horses, proceed in the same way as he who wants them for military service; for just as we need them high-spirited for camps, so we prefer to have them quiet

[1] *Vectorios.* I have translated Keil's text, though it does not sound right to me. For (1) *vectura* means "transport, carrying of *goods*," and *vecturam facere* means "to be a carrier," and so (2) I cannot think that *vectorios* is defined by *equos ad ephippium aut ad raedam* (*factos*). I would propose to read *neque idem qui vectorios facere vult* aut *ad ephippium*, etc., and would translate: "Nor does he who means to train horses for carrying (pack-horses) or for the saddle or for driving," etc. *Aut* followed by *ad* might easily have dropped out of the text.

[2] *Ad raedam.* The *raeda* or *reda* was a four-wheeled travelling carriage big enough to hold a man and his family (if moderate) and luggage. Cicero, writing to Varro, says: *Quod si heri tuam redam non habuissem varices haberem*, and (Ad Att., v, 17, beginning) he dictates a letter to Atticus sitting in a *reda* when he was starting on a two-days journey: *Hanc epistolam dictavi sedens in reda cum in castra proficiscerer a quibus aberam bidui.*

on the road. To this difference the practice of castration is principally due, for on the removal of their stones horses become gentler because they have no seed. Castrated horses are called geldings (*cantherii*), as castrated pigs are termed hogs
16 (*maiales*), and castrated cocks capons (*capi*). As regards medicine, in the case of horses there are very many symptoms of disease, and methods of treatment, and these the groom should have written down. And so veterinary surgeons are in Greece called by the special name of ἱππίατροι (horse doctors).[1]

CHAPTER VIII

OF MULES AND HINNIES

1 As we were talking thus a freedman came from Menas[2] to say that the cakes (*liba*) were ready and

[1] ἱππίατροι = *veterinarii*, those who treated *veterina animalia*. *Veterinus*. Festus and Nonius derive from *veho*, and translate "beasts of burden," *omnia quae vehere quid possunt*. Nonius quotes Lucretius, v:

Et genus omne quod est veterino semine partum.

[2] *Menate*. Cf. ii, 1, 1, and for *tertium actum* below cf. ii, 1, 12.

One would like to know what Menas was doing all this time! Was he cooking the *liba*? It seems pretty certain, as this book was written for shepherds, and the interlocutors are *pecuarii*, and as sacrifice was now to be made with *liba*, that

the sacrifice prepared: would the gentlemen please come and sacrifice for themselves. For my part, I exclaimed, I won't let you go until you give me my due, the third act, in which figure mules, dogs, and shepherds. There is little to be said about them, answered Murrius, for both mules and hinnies are mongrels—grafts—not springing from roots of their own kind. For from mare and he-ass comes a mule,
2 while from horse and she-ass a hinny.[1] Both of them are good for work, while neither earns any-

the conversations in this book were held on the occasion of the *Parilia*, and that the sacrifice here mentioned was to Pales, the god of shepherds. Cf. Ovid, Fasti, iv, 775:

> *Quae precor eveniant: et nos faciamus ad annum*
> Pastorum *dominae* grandia liba *Pali*.

But the *Parilia* would be celebrated in the provinces as well as at Rome. So that this does not tell against the supposition that the place of these conversations was Sicily. Cf. note, ii, 5, 1.

The *liba* were, of course, cakes made of flour and milk, or of pounded cheese, fine flour, and eggs; cf. Cato, lxxv. The priest's slave in Horace, Epist., i, 10, 10, ran away because he was tired of eternal cakes.

> *Utque sacerdotis fugitivus liba recuso.*

[1] *Hinnus.* Columella (vi, 37, 5): *Qui ex equo et asina concepti generantur, quamvis a patre nomen traxerint quod hinni vocantur matri per omnia magis similes sunt.* Pliny (viii, 44) speaks of *hinni* as being "unmanageable and incurably slow." Aristotle (An. Gen., ii, 8, end) calls γίννος the offspring of a horse and an ass, which has suffered in the womb, and says that it is ἡμίονος ἀνάπηρος, "a damaged mule," and like a *porcus cordus* (τὰ μετάχοιρα ἐν τοῖς χοίροις). The small size of the Pygmies, he continues, is accounted for in the same way (by illness of the foetus).

thing by breeding. A foal of an ass is put when just born under a mare, as the latter's milk makes him bigger, for they say it is more feeding than asses' milk. Chaff, hay, and barley are given to him in addition. Much care[1] is taken of the foster-mother, also that she may be able to give a supply of milk as food to the foal. Thus reared he may be used for breeding purposes from three[2] years old, and being used to live with the mares he feels no
3 repugnance for them. If you use him as a stallion younger, not only does he flag more quickly, but the offspring also are poorer. Those who do not possess an ass which has been suckled by a mare, and want to keep an ass for stud purposes, pick the biggest and handsomest they can, and one that comes from a good nursery—in Arcadia, said the ancients; but our experience leads us to prefer the Reatine country, where some stallions have been sold for £240 and even £320 apiece. We buy asses

[1] *Inserviunt.* Schneider translates *cibum largius praebent*, and the word must mean something of the kind. The nearest parallel I can find is Cicero, Ad Div., xvi, 17: *valetudini fideliter inserviendo.*

[2] *A trimo.* Columella (vi, 37, 9) says "not less than three, or more than ten years old." And a few lines earlier: "Thus reared the ass grows fond of mares. Sometimes, too, though suckled by his own mother, if he becomes familiar with them when he is quite young he seeks their company afterwards."

Aristotle (H. A., vi, 23, end) says that it is indispensable for an ass which is to procreate mules to be reared under a mare. *Οὐ προσδέχεται δ' οὐθ' ἡ ἵππος τὸν ὄνον οὐθ' ἡ ὄνος τὸν ἵππον, ἐὰν μὴ τύχῃ τεθηλακὼς ὁ ὄνος ἵππον.*

as we do horses, and require the same guarantee in buying, and adopt the same formalities in taking them over as have been described in the case of
4 horses. We feed asses principally on hay and barley, and increase their allowance before they are put to the female, so that by food we may flush them with strength for their work. They are brought to it at the same time as are horses, and similarly a groom is there to help the stallion when he performs the operation. When a mare has brought forth a he- or she-mule we bring it up and
5 feed it. If mules are born in a marshy and damp district they have soft hoofs; but if they are driven to the mountains in summer time—as is done in the Reatine country—their hoofs become very hard. In buying a herd of mules you must observe their age and shape, the former that they may be able to stand hard work when engaged in carrying loads; the latter, that one may take pleasure in looking at them. For when a pair of these is yoked together they can draw on the road any kind of vehicle.
6 You might have taken my word for these facts, said he to me, as I come from Reate; but you keep herds of mares at your place and have yourself sold herds of mules. What is called a *hinnus* (hinny) comes from a horse and a she-ass; they are smaller in size than mules, and generally of a colour with more red[1] in it, have ears like those of a horse, and

[1] *Rubicundior.* Isidore of Seville (xii, 1, end) calls a hinny *burdo* (*burro*?)—*mulus ex equa et asino: burdo ex equo et asina.* Vegetius (vi, 2, 2) speaks of *burici.* In Italian *buricco* is a

mane and tail like those of an ass. Like horses, too, they remain in the mother's womb for twelve months; they are reared and fed in the same way as horses, and their age is likewise inferred from their teeth.

CHAPTER IX

OF DOGS

1 SAID Atticus: Of quadrupeds dogs now remain to be discussed—a subject particularly interesting to us who feed wool-bearing stock. For the dog is the guardian of those animals which need its companionship for defence. Amongst these sheep come first, she-goats second. These the wolf is ever trying to catch, and against him we set dogs to defend them. Of the pig kind, however, some animals can defend themselves, namely, boars, hogs, and sows—for these animals closely resemble wild boars which in the woods have often been known to kill dogs with
2 their tusks. I need hardly mention the larger cattle, for I know that when a herd of mules have been feeding, and a wolf has appeared on the scene, the

familiar term for a donkey, and in French *bourrique* means an *âne chétif*. All these names are probably connected with the red colour mentioned by Varro, for we know from Festus that *burrus* in rustic Latin was used for *rufus*. It is of course the Latin equivalent of πυρρός (Dor. πύρριχος).

mules of their own accord have surrounded him and trampled him to death with their hoofs; and that bulls will stand flank to flank, opposing an unbroken front[1] against wolves, and easily drive them off with their horns.

About dogs then: there are two kinds, one for hunting[2] connected with the wild beasts of the woods, the other bought for purposes of defence, and used by the shepherd. I will discuss the latter,

[1] *Adversos.* So Keil for the *diversos* of the MSS.; wrongly I think, for bulls, it is known, form a half circle, not a line, against the attacks of the larger carnivora. Their hind-quarters (*clunes*) might then be close together, while their heads would be properly described by the word *diversa*, "turned in different directions."

[2] *Unum venaticum*, etc. The text of the MSS. is a singular jumble! It is as follows: *Unum venaticum et pertinet ad feras bestibus assiluestribus assiluestres alterum*, etc. Nor is one satisfied with Keil's emendation. The *canis venaticus* differed greatly from the *canis pastoralis*, being slimmer, smaller, weaker, but more speedy (cf. Aristotle, H. A., ix, 1). It was used for hunting wild animals (*bestiae siluestres*) such as the hare, stag, etc. The sheep-dog, the Molossus, protected sheep against beasts of prey (*bestiae ferae*), and was bred for size, strength, and courage. I would propose then to read: *Unum venaticum ad bestias siluestres, ad feras bestias alterum quod custodiae causa paratur et pertinet ad pastorem.* The first *et pertinet* probably arose out of the second. The translation will be: "One for hunting wild animals, the other used against beasts of prey which is bought to serve as a guard and is connected with the shepherd." Columella (vii, 12) distinguishes between the *venaticus* and the *villaticus*, the latter, the watch-dog, being the biggest, strongest, and slowest of the three. He also says *venaticus nihil pertinet ad nostram professionem.*

keeping in my treatment of the art to the nine-fold[1] division which was before explained.

3 In the first place you must get dogs of the proper age, for puppies and old dogs are no protection either to themselves or to sheep, and sometimes fall a prey to wild beasts. In shape[2] they should be handsome; of great size, with eyes black or yellowish, with nostrils to match;[3] the lips should be blackish or red, the upper ones neither too much turned up nor hanging down too low; the lower jaw short,[4] and the two teeth springing from it on the right and left side projecting a little, while the upper teeth should be straight rather than pro-
4 jecting;[5] the incisors should be covered by the lip; the head and ears large and the latter broad and hanging; the neck and throat thick, the parts between the joints long, the legs straight and turn-

[1] *Novem partes.* Cf. ii, 1, 12: *Harum una quaeque in se generalis partis habet minimum* novenas, *quarum in pecore parando necessariae quattuor, alterae in pascendo totidem, praeterea communis una.* The nine divisions are (1) age, (2) type, (3) breed, (4) legal formalities in buying, (5) feeding, (6) breeding, (7) rearing, (8) health, and (9) number.

[2] *Facie.* Most of what follows is translated almost word for word by the Geoponica, xix, 2. Cf. also Columella, vii, 12 —a delightful chapter.

[3] *Congruentibus.* The Geoponica (*loc. cit.*) have μυκτῆρα ὁμόχροιαν ἔχοντες. In ii, 7, 5, *congruentes* meant "symmetrical."

[4] *Mento suppresso.* Most of the dogs represented on ancient monuments resemble Varro's description in regard to the short lower jaw, the straight back, and the pendent ears.

[5] *Brocchis.* In a former passage (ii, 7, 4) Crescentius translated this word *plicati.* Here he translates it by *torti.*

ing outwards[1] rather than inwards; the feet big and broad, spreading[2] out as they walk; the toes well separated, claws hard and curved; soles not horny or too hard, but rather as it were spongy and soft; the body tucked in near the top of the thighs, the spine neither prominent nor curved, and the tail thick. The bark should be deep, the stretch of jaw[3] great, the colour preferably white,[4] because they are thus more easily recognized in the dark,
5 and their appearance should be lion-like. Breeders like the bitches to have, besides, breasts furnished

[1] *Potius varis.* Cf. Geoponica (*loc. cit.*): σκαμβότερα μᾶλλον ἢ βλαισά.

[2] *Displodantur.* Cf. note to ii, 5, 8.

[3] *Hiatu magno.* τοὺς μέγα τὸ χάσμα ἔχοντας (Geoponica, *loc. cit.*).

[4] *Potissimum albo.* Columella (*loc. cit.*) says white for the sheep-dog, black for the house-dog. The former is to be white so that in the dark mornings or the twilight of evening he may readily be distinguished from a beast of prey, and may not be killed by the shepherd in mistake. The black house-dog is a terrible fellow, "big, black, thick-set—his head so large as to seem the largest part of his body—with drooping ears, black or yellow eyes gleaming with a fierce light," etc. And again: "The watch-dog is a policeman, and if the thief comes in broad daylight the dog looks more terrible being black, while if the burglar come at night the watch-dog is not visible at all owing to his likeness to a shadow, and so can get at him more safely. . . . The sheep-dog need not be so lean and fleet as the stag-hound nor so stout or heavy as the watch-dog. He must, however, be very strong and to some extent quick and vigorous, as he is expected to be able both to fight and run—to drive off the crafty wolf or follow him and make him drop his prey."

with teats of equal size. One must also see that they come of a good breed, and so they, too, are called after the districts whence they come, Laconian,[1] Epirot, Sallentine.[2] Be careful not to buy dogs either from hunters or butchers, for butchers' dogs are too lazy to follow the flock, while hunting dogs, if they see a hare or a stag, will follow it instead of the sheep. Hence the best is one bought from shepherds, that has been trained to follow sheep, or has had no training at all. For a dog acquires a habit more readily than other animals, and the attachment to shepherds resulting from familiar intercourse with them, is stronger than that which he feels for sheep.

6 Publius Aufidius Pontianus, of Amiternum, had bought some flocks of sheep in furthest Umbria,[3]

[1] *Lacones*, etc. Vergil mentions the Laconian and the Epirot (Molossus), Georg., iii, 404:

> *Nec tibi cura canum fuerit postrema, sed una*
> *Veloces Spartae catulos acremque Molossum*
> *Pasce sero pingui, numquam custodibus illis*, etc.,

where Servius *In Laconicis velocitas in Molossis* (*Molossia—civitas Epiri*) *fortitudo laudatur.* The Laconian hound was used for hunting, and Columella says a farmer has no business to keep one, "for it takes him from his proper work and makes him lazy in it."

[2] The *Salentini Campi* in the north-west part of Iapygia. What Schneider means by calling these dogs Umbrian I cannot guess! Sextus Pompeius (*sub Salentinos*) says that the Illyrians were called *Salentini*, from *Salum*. The Sallentine may possibly have been an Illyrian breed.

[3] *In Umbria.* The Umbrian dogs were famous for their keen scent. *Umber nare sagax* (Sil. Ital., iii. 294).

and in the bargain were included the dogs, but not the shepherds who were to take the sheep down to the forest clearings near Metapontum and the mart of Heraclea. The shepherds having performed their task returned home; but a few days later, the dogs, missing sorely their human friends, came back of their own accord to the shepherds in Umbria, having got themselves food from the surrounding country —and this though the journey took many[1] days. Yet none of the shepherds had followed the advice given by Saserna, when writing on farming, to the effect that any one wanting a dog to follow him about should throw him a cooked frog.

It is of great importance that your dogs should be of the same[2] blood, for when akin they are the greatest protection to one another.

7 In the fourth place comes the question of purchase. Change of ownership is effected by delivery from the first to the second owner. As to health and liability for damage the same guarantees are required as in the case of cattle (oxen), save that in this case (of dogs) due exceptions[3] are made on the

[1] *Dierum multorum.* A distance of about 300 miles.

[2] *Eodem semine.* Cf. Geoponica, xix, 2: *θρεπτέον δὲ τοὺς κύνας κατὰ συγγένειαν. ἀμύνουσι γὰρ ἀλλήλοις φυσικῶς.*

[3] *Exceptum est.* On these *exceptiones* cf. Justinian, Inst., where a chapter is devoted to the subject.

Keil makes the *hic* in this sentence refer to *pecoris*, and *pecoris* he takes in the limited sense of "sheep." But turning to ii, 2, 6, we find that the "exceptions" in the case of sheep closely resemble what is mentioned here about dogs, *pretio facto in singulas oves, ut agni cordi duo pro una ove adnumer-*

score of equity. Some people buy their dogs separately, others in buying arrange for the puppies to go with the mother, others that two puppies shall count as one dog, as two lambs do for one sheep; others arrange that those dogs shall be taken over which have been accustomed to be together.

8 A dog's food is more like a man's than a sheep's, for it feeds on bits of meat,[1] etc., and bones, not grass and leaves. You must be very careful to give them food, for if you do not, hunger will drive
9 them to hunt for it and desert the flock; if indeed they do not (and some people think they will) go so far as to give the lie to the ancient proverb,[2] or a practical illustration of the myth about Actaeon by
10 turning their teeth against their master. And you must give[3] them barley-bread, which must be well

entur, etc. So that *hic* clearly refers to dogs. But then *pecoris* cannot mean "sheep"; it must mean cattle in the sense of oxen, in the case of which these exceptions were not made. Cf. ii, 5, 10. *Pecus*, of course, as a legal term, included *oves*, *boves*, *equos*, *capras*, and even *sues*, but generally meant oxen and cows. *Aliquando bonus dormitat Homerus!*

[1] *Eduliis.* Fulgentius defines *edulium* as *praegustativa comestio*="a snack."

[2] *Proverbium. Canis caninam non est* ("Dog doesn't eat dog"). Cf. Varro, L. L., vii, cap. 3 (§ 87, Spengel): *Nam idem quod παροιμιαν vocant Graeci, ut est "Auribus lupum teneo," "Canis caninam non est."* Many proverbs, all more or less irrelevant, had been suggested by the commentators, when Keil, by indicating this, made the whole passage clear.

[3] *Nec non . . . non.* The second *non* is, of course, incorrect. Varro's careless use of negatives (Keil gives many examples in his note to i, 2, 23) reminds one strongly of the practice in

soaked in milk, for when once accustomed to such a diet they are slow to desert the flock. They are not allowed to eat the flesh of a dead[1] sheep for fear that their power of self-restraint may be weakened by its good flavour. They are given also bone soup,[2] or the bones themselves after they have been broken, for this makes their teeth stronger, and the mouth wider owing to the vigour with which their jaws are distended as they eagerly enjoy the marrow. Dogs are fed generally in the day time, when they go out to the pasture, and in the evening when they come back to the stalls.

11 For breeding, they begin to put the dog to the bitch at the opening of spring, for it is then that they are in what is called "heat." That is, they show their desire for mating. Bitches which are covered at this time litter about the summer solstice, for gestation lasts usually three months. During pregnancy you should give barley rather than wheaten bread, for it nourishes them better,
12 and they give a greater supply of milk. As to rearing the puppies: if there are many of them you

early English. Double negatives are quite common as late as Elizabethan times. Cf. Roger Ascham (37): "No sonne, were he never so old of yeares, might *not* marry."

[1] *Morticinae.* Generally used of a natural death. Cf. iii, 2, 18. The Geoponica (*loc. cit.*) more fully: *Τῶν δὲ ἀποθνησκόντων θρεμμάτων οὐκ ἐῶσιν ἅπτεσθαι ἵνα μὴ συνεθισθῶσι καὶ τοῖς ζῶσιν ἐπιτίθεσθαι. δυσμετάκλητοι γὰρ ἐκβαίνουσιν ὅταν ἅπαξ ὠμοφαγήσωσιν.*

[2] *Ius ex ossibus.* In the corresponding passage the Geoponica (xix, 1) have *ὁ ἐκ τῶν ὀστέων μυελός.* But this perhaps refers to *medullarum* lower down.

should choose immediately after birth those you mean to keep, and get rid of the rest.[1] The fewer you leave the better they grow, owing to the abundance of milk they get. Put chaff or something of the sort for them to lie on, for the more comfortable their bed the more easily are they brought up.[2] Puppies begin to see at twenty days.[3] For the first two months after birth they are not separated from their mother, but learn little by little to do without her. Sometimes several of them are taken to one place and are egged on to fight, as it makes them fiercer, but they are not allowed to tire themselves
13 out, because this breaks their spirit.[4] They are trained to allow themselves to be tied up at first with light leather thongs,[5] and they are beaten if

[1] *Reliquos abicere.* The Geoponica (*loc. cit.*): "Out of seven keep three or four, of three keep two."

[2] *Educantur.* "For this animal also is very intolerant of cold" (Geoponica, *loc. cit.*).

[3] *Diebus xx.* The Geoponica have ἐν ἡμέραις κ' (20). Pliny, viii, 40: "The more milk they get the longer are they before they can see; they are never blind, however, beyond the twenty-first day and never see before the seventh." Aristotle (H. A., vi, 20) makes this depend on the time of gestation in the mothers. "The Laconian bitch is pregnant a sixth part of the year—about two months—and her pups are blind for twelve days; others for a fifth part of the year (about seventy-two days), and the puppies of these are blind for fourteen days; others for a quarter of the year (three whole months), and theirs are blind for seventeen days."

[4] *Segniores fiunt.* Geoponica (*loc. cit.*): καταβαρεῖσθαι δ' οὐκ ἐῶσι, χάριν τοῦ μὴ δειλιᾷν, "do not let them be over-done lest they grow cowardly."

[5] *Levibus vinclis.* In the Geoponica the words are δεσμοῖς δὲ

they try to gnaw them away—until the habit is lost. On rainy days beds should be made for them with leaves or grass, for two reasons—that they
14 may neither get dirty, nor catch a chill. Some people castrate them, thinking them thus less likely to leave the flock; others do not, for they consider that it takes away their spirit. Some people rub their ears and between their toes with a mixture of pounded almonds and water, because it is said, unless this ointment be used, flies, ticks and fleas
15 cause ulcers there. To prevent them from being wounded by wild beasts collars are put on them—the collar called *melium*,[1] which is a band made

. . . τὸ μὲν πρῶτον ἱμάντι, εἶτα κατὰ μέρος σιδήρῳ—"at first with a leather strap, then by degrees with an iron chain." In all the printed editions before Victorius instead of *vinclis* was found *numellis*. *Numella* is defined in a fragment of Festus as *genus vinculi quo quadrupedes alligantur; solent autem ea fieri nervo aut corio crudo bovis.* This corresponds admirably with ἱμάντι above; and it is strange that in Varro there is no *deinde* (εἶτα) to balance *primum*. One would have expected something like *levibus vinclis* (ἱμᾶσιν), *primum numellis* (ἱμάντι) *quas . . . solent; deinde ferreis* (σιδήρῳ). But the MSS. give no support to such a reading.

[1] *Melium.* This kind of collar was in the time of Festus and according to him in that of Scipio Africanus called *millus*. He defines it thus: "A hound's collar made of leather and studded with iron nails which stick out—as a protection against an attacking wolf."

The Geoponica (*loc. cit.*) say that iron spikes two fingers' breadth from one another "should project from the collar." The heads of the nails were, of course, on the under side of the collar, hence the need of stitching on a piece of soft leather to prevent the dog's neck from being chafed.

of stout leather going round the neck and furnished with nails having heads. Under these heads a piece of soft leather is sewn, so that the hardness of the iron may not hurt the dog's neck. If a wolf or any other animal has been wounded by this collar it makes all the other dogs safe from him, even
16 those that do not wear it. The number of dogs is usually made proportionate to the size of the flock, and it is thought to be in most cases proper for one dog to follow each shepherd. As to the number, however, people differ in their estimate, for if the district be one where wild beasts abound, more dogs are needed—which is the case with those who have to journey with their flocks to winter or summer quarters by long tracks[1] through the forest. But for a flock staying at the farmstead two are thought enough for the farm—a dog and a bitch. For so they stick better to their work, since the same[2] dog

[1] *Calles.* Cf. Isidore, xv, 16 (towards the end): *Callis est iter pecudum inter montes angustum et tritum, a callo pecudum vocatum, sive callo pecudum perduratum*, i.e., a "sheep-walk."

[2] *Quod cum altero item*, etc. The archetype has *quod cum altero idem fit acrior et si alter videm fiter aeger est ne sine cane grex sit*, which Keil emends *arbitrio suo.* He objects to the *idem*, which seems pure Varro (cf. i, 23, 6). The same dog becomes another dog—much keener—when he has a comrade. Crescentius also has *idem.* As to the rest Keil's emendation diverges widely from the MSS., and the *ne sine cane grex sit* seems impossibly harsh.

Is it not possible to keep much closer to the archetype by reading *et si alter uter* (or *quidem*) *fit aeger, est ne sine cane grex sit?* The use of *est* (which is needed for the apodosis) is common when followed by an affirmative clause. Cf. Horace's

when he has a companion grows keener than before, and if one or other falls ill, the flock need not be without a dog.

CHAPTER X

OF SHEPHERDS

1 Atticus looked round as though to ask whether he had omitted any point, and I remarked: This silence calls another actor on to the stage, for in this act the only part left is to determine the number and nature of the shepherds to be kept. Then said Cossinius: For the larger cattle you need older men, for the smaller even boys will do, but either men or boys whose life is spent in forest tracks must be stronger than those who return home every day to the farmstead. Thus in forest glades one may see men in the prime of life, and armed as a rule, while on the farm even girls as well as boys look after the
2 flock. You must make your shepherds feed their flocks throughout the day, letting the flocks graze all together, but at night they must separate and each shepherd stay with his own. They must all be under one flock-master who should be older than

Est ut viro vir latius ordinet, etc., and resembles the Greek ἔστιν ὥστε. Cf. Soph. (Phil., 6, 56): ἆρ' ἔστιν ὥστε κἀγγύθεν θέαν λαβεῖν. One would have expected, however, *est ut non* (or *ut ne*) . . . *sit*. And perhaps *ut ne* . . . *sit* was written.

the others, and more skilful than them all, for he who is older and wiser than the rest is more cheer-
3 fully obeyed by them. He must not, however, be so much older as to be unable through age to stand hard work. For both the aged and the very young bear with difficulty the hardships of travel through forest paths and up steep and rugged mountains, and these hardships are inevitable for those who have herds to drive, especially if these consist of cattle or goats, which like to feed amidst rocks and woods.

The kind of man chosen should be strong, swift, nimble, with supple limbs; capable not only of following his flock but of defending it from wild beasts and robbers; able to heave loads on to the backs of beasts of burden, to run swiftly forward
4 and to hurl the javelin. It is not every race that is fitted for dealing with cattle—for instance the Bastulian [1] and Turdulian are of little use, while the Gauls are just the men for it, especially for draught cattle.

As to purchase, there are six ways of becoming the legal owner of a slave: (1) by legal inheritance; (2) receiving with the proper forms by mancipation [2]

[1] *Bastulus et Turdulus.* The inhabitants of Granada and Andalusia. Cf. Pomponius Mela, iii, 1.

[2] *Mancipio. Mancipatior*—purchase, *per aes et libram* was conducted in the presence of six Roman citizens of full age. One of them called *libripens* (the weigher) held a pair of scales; the buyer placed a hand on the thing being bought (*e.g.*, slave), and said, "I assert that this slave is mine . . . and he is purchased by me with this piece of money and brazen

from a person who had the right to sell; (3) by legal surrender[1] before the praetor by the proper person at the proper time; (4) by right of undisturbed possession; (5) by purchase at a public auction of goods captured in war; (6) by buying him among the goods or at the sale of the property[2]
5 of a proscribed man. When a slave is bought the *peculium* goes as a rule with the slave (or a reservation of it is made), and a guarantee is inserted that he is healthy, and has committed no thefts or damage; or that where the transfer is not effected by mancipation,[3] either double the purchase money

scales." He then struck the scales with the piece of money and gave it to the seller as a symbol of the price (Gaius, Inst., i, 119).

[1] *Si in iure cessit.* A process resembling "conveyance by fine and by common recovery" which was in use in England a hundred years ago. It was a kind of fictitious suit, the parties to which were the *dominus qui cessit*, the person *cui cedebatur*, and the magistrate (usually the praetor) *qui addixit.* The real owner and the purchaser appeared before the magistrate, the latter claimed the thing in question as his own; the magistrate asked the owner if he had any defence, the latter replied that he had not; whereupon the magistrate adjudged the thing to the claimant.

For this cf. Gaius, Inst., i, 2, *De Nexu faciendo.*

[2] *In sectione.* When a man was proscribed his property was confiscated to the State and was sold by auction—not in lots, but the whole to one person. This sale was called *sectio* and the purchaser *sector.*

[3] *Si mancipio non datur.* A vendor who had a doubtful title would not sell by mancipation, for the law bound him to warranty in double the amount or value of the thing sold. He might instead simply deliver the thing, leaving the purchaser

is to be paid (in case of eviction), or, if such has been the agreement, only the amount paid.

In the day time the shepherds of each separate flock should feed by themselves, in the evening all those who are under one chief shepherd should eat together at the evening meal. The chief must see that all the implements needed by the flock and shepherds accompany them, especially those which are necessary for the feeding of the men and for the medical treatment of the sheep. For this purpose owners keep pack animals, some using mares, others some other animal instead, which can carry a load on its back.

6 As to the breeding of men: there is no difficulty with the shepherd who remains permanently on the farm, as he has a female slave as mate in the farm-buildings, for the Venus of shepherds looks no further afield than this. Those however who feed their flocks in forest glades and places in the woods, and find shelter from storms not in a farmhouse but in hastily built huts, are with advantage, as many people think, given women who can follow the flocks, prepare the shepherds' victuals and keep the
7 men from roving. But these women must be able-bodied and not uncomely. In many districts they

to acquire legal ownership by *usucapion* (undisturbed possession for a year).

But, in case the title was bad, the purchaser, before the year was out, might be compelled to cede the thing to the proper owner, and would have no immediate legal remedy against the vendor. Hence the necessity when a slave was not sold by mancipation for the stipulation given here by Varro.

are as good workers as men—a fact which you may observe everywhere in Illyricum where they can either shepherd the flock, or carry logs to the fire and cook the food, or look after the farm imple-
8 ments in the huts. As to the suckling of the young, I may mention that the mothers in nearly all cases suckle their own. And here, looking at me, he said: I have heard you say that when you went to Liburnia (Croatia) you saw there Liburnian house-wives carrying logs, and at the same time children, whom they were suckling; thus proving how feeble and contemptible are our modern newly-delivered mothers, who lie for days inside mosquito[1]
9 nets. True it is, I replied, and here is an even more striking illustration. In Illyricum[2] it often happens that a pregnant woman when the time of delivery has come, retires a little distance from the scene of her work, is there delivered, and comes back with a child whom you would think she had found, not

[1] *Conopiis.* The use of mosquito nets (*κωνωπεῖα—κώνωψ*, a gnat) is very ancient. Herodotus, ii, 94, describes how the Egyptian fisherman used his net (*ἀμφίβληστρον*) in the day for fishing, and at night arranged it round him in the form of a tent—and the mosquitoes didn't even try to get in! *διὰ δὲ τοῦ δικτύου οὐδὲ πειρῶνται ἀρχήν.* When Judith was introduced to Holofernes in his tent, he was "lying on his bed inside the mosquito curtain which was of purple and gold, with emeralds and other precious stones inwoven" (Judith, x, 21): *ἐν τῷ κωνωπείῳ, ὃ ἦν ἐκ πορφύρας καὶ χρυσίου καὶ σμαράγδου καὶ λίθων πολυτελῶν καθυφασμένων.*

[2] *Illyrico.* The same story is told of Ligurian women by the author of the book *περὶ θαυμασίων ἀκουσμάτων*, cap. 93. "The women bear children in the midst of work, and as soon as they have washed the baby dig and hoe," etc.

brought into the world. Another striking fact: girls there, called "virgins," sometimes twenty years old, are not forbidden by the custom of the country to mate with any one they like before marriage, and to wander about unaccompanied, and have children.

10 Rules and prescriptions relating to the health of the men and the flock, and such treatment as can be given without a doctor, the chief shepherd should have set down in writing. For if he cannot read and write he is no good for his post, being quite incapable of correctly making up the accounts connected with his master's stock.

As to the number of shepherds, some set a higher, some a lower, standard. I have assigned one shepherd to every eighty wool-bearing sheep, Atticus
11 one to every hundred. Where the flocks of sheep are large—some have them up to a thousand sheep—you may more easily subtract from the total number of men than in the case of smaller flocks, such as those belonging to Atticus and myself. For mine consist of seven hundred head, you, I believe, have had flocks of eight hundred, agreeing, however, with me in keeping one ram to every ten sheep.

For a herd of fifty mares two men are wanted, and, without doubt, each of them should have a mare that has been broken for riding, in those districts where the mares are rounded up and driven to their stables at night, as is often the case in Apulia and Lucania.

CHAPTER XI

OF MILK AND WOOL

1 Now, said Cossinius,[1] that we have finished what we set ourselves to do, let us go. Yes, said I, after you have added a word or two, as it was previously agreed, about the supplementary[2] products from sheep—milk and wool to wit. Of all liquids taken as food, milk is the most nutritious; first sheep's milk, then that of goats. Mares'[3] milk is the most strongly purgative; next in order comes that of asses, then that of cows, and last that of
2 goats. These different milks, however, present certain differences, depending on the pasturage, the nature of the animals, and the birth of the young one; on the pasturage, for milk is especially nutritious which is got from an animal that has been fed on barley and straw, or, in general, on dry and solid food, while that is most purgative which comes from one that has fed on green fodder, especially if

[1] It is obviously Cossinius who speaks. Twice later in this chapter Varro interrupts him, § 5 and § 10. In § 11, *Suscipit Cossinius.*

[2] *Extraordinario.* Cf. ii, 1, 28.

[3] *Equinum.* It would seem from Aristotle (H. A., iii, 20) that the thinner the milk the more purgative it is. The thinnest milk is camel's—then comes mare's milk, then ass's, while cow's is the "thickest" of all.

the latter consist of plants[1] which, when taken directly, generally act with us as purgatives; on the nature of the animal, for milk is better which comes from those that are in robust health and still young than if the reverse is the case; on milking and the birth of the young one, as that milk is the best which is taken not too long after, nor immediately[2] after, birth.

3 Of cheeses,[3] those which are made from cows' milk are the most nourishing, but pass through the body with the greatest difficulty; in the second place come those made from sheep's milk, while the least nutritious and most laxative are those made from goat's milk. We must also distinguish between soft and new cheese, and that which is old and dry; soft[4] cheese being the more nutritious and less constipating, while the opposite is the case
4 with old and dry cheese. Cheese-making begins

[1] *Ex herbis.* Such as scammony, hellebore, or periwinkle. Cf. Dioscorides, ii, 75.

[2] *A partu continuo.* Varro refers, of course, to the *colostra* of which Aristotle (*loc. cit.*) says, ἄχρηστον δὲ τὸ πρῶτον καὶ ὕστερον. The *mulso* of the text is difficult. Keil makes it synonymous with the *colostra*, quoting Pliny's words about *foie gras*: *Fartilibus in magnam amplitudinem crescit: exemptum quoque lacte mulso augetur* (Pliny, x, 22), and says that the first milk after parturition was called *mulsum* because of its sweetness. I can find, however, no authority for the statement save the doubtful one given above.

[3] *Casei.* For an interesting account of cheese-making cf. Columella, vii, 8.

[4] *Molles.* Pausanias (vi, 7) says that the ancient athletes used to train on soft cheese, in preference to flesh meat.

with the rising of the Pleiads,[1] in spring, and goes on to the rising of the same in summer. Milking for the purpose of making cheese is done in spring time, early in the morning, at other times about noon, though owing to the varying nature of climate and food the same practice does not obtain in every place. To about two *congii* (about one-and-a-half gallon) of milk is added to cause coagulation a piece of rennet the size of an olive—rennet taken from a hare or kid being better than that from a lamb. Some people use instead of rennet the milk from a fig[2] branch and vinegar; they also sprinkle the milk with several other things which are included under one term by the Greeks. The term
5 used is sometimes ὀπός, sometimes δάκρυον. I would

[1] *A Vergilias vernas.* Cf. Festus: *Vergiliae dictae quia earum ortu ver finitur et aestas incipit*, and Isidore, iii, 70: *Has (Pleiadas) Latini Vergilias dicunt a temporis significatione quod vere exoriuntur. Nam occasu suo hiemem, ortu aestatem primaeque navigationis tempus ostendunt.* Cf. also Pliny, xviii, 25. The morning rising of the Pleiads was 10th May. According to the Caesarian calendar they set in Spring on 5th April, and were invisible for thirty-four days (Pliny, xviii, 26).

[2] *Fici ramo.* Columella (vii, 8, 1): "Milk is generally made to curdle by means of the rennet from a lamb or a kid, but the down of the wild thistle will do it, as well as fig-milk which is emitted from the tree if you wound the green bark. The best cheese, however, is that which is the least 'doctored'—but for a pail (*sinum*) of milk, a piece of rennet weighing not less than a silver denarius (franc) is needed."

[3] ὀπός. Any exudation from a plant was called indifferently ὀπός or δάκρυον. Cf. Theophrastus (C. P., vi, 11, 16): "And they call these sometimes ὀπούς, sometimes δάκρυα (tears), the

not deny, I remarked, that this was the reason why the fig tree was planted by the shepherds near the chapel of the goddess Rumina, for the sacrifices offered now are milk instead of wine and sucking-pigs. For *rumis*[1] is an ancient word meaning "breast," and we still speak of sucking lambs as *subrumi*, just as we use the term *lactantes* (sucklings) from *lac* (milk).

6 For sprinkling over cheese rock-salt is better than sea-salt.

In sheep-shearing I first notice, before setting to work, whether they suffer from scab or ulcers, so that, if necessary, they may receive proper treatment before being shorn. The time for sheep-shearing is between the vernal equinox and the summer solstice, when the sheep have begun to sweat. From the word *sudor* (sweat) fresh-clipped
7 wool is called *sucida* (juicy). Sheep newly shorn are smeared the same day with wine and oil, but some people use a mixture of white wax and bacon fat, and if the sheep is used to wearing a jacket[2] they put on again the skin with which it was formerly covered, after smearing the inner side of it with the same mixture. If in the course of shearing a sheep has been wounded, one anoints the place with liquid pitch.[3] Sheep with coarse wool are

common term being ὀπός. But there is perhaps no difference in meaning."

[1] *Rumis*. Cf. note to ii, 1, 20.

[2] Cf. the *oves pellitas* of ii, 2, 20.

[3] *Pice liquida*. Hot pitch was also used for branding the

shorn here about the time of the barley harvest, in
8 other places before hay cutting. Some shear them twice within the year--as is the case in Hither Spain—that is, every six months, putting in double work with the idea of getting more wool, just as some people mow their meadows twice. The more thrifty farmers shear their sheep on little mats, to
9 avoid the loss of any wisps of wool. Fine weather is chosen for the work, which then goes on roughly between 10 a.m. and 4 p.m. For when the sheep is sheared when the sun is hot its wool is softer, heavier, and better coloured, owing to the sweat. This wool, removed from the sheep and piled together, is called by some *vellera* (fleeces), by others *velamina*. From this word *vellera* it may be inferred that in the matter of wool, plucking was invented before clipping. Those who even now "pluck" keep their sheep fasting for three days before, for when they are without strength the
10 roots of the wool come away more easily. Hair-cutters[1] are said first to have come to Italy in 300

sheep with the owner's name. Cf. Calpurnius (Ecl. v, 82):

> . . . *Coquito lentumque bitumen aheno*
> *Impressurus ovi tua nomina: nam tibi lites*
> *Auferet ingentes lectus possessor in armo.*
> (quoted by Schneider).

[1] *Tonsores*. Pliny (vii, 59) states the same fact, using Varro as his authority. He adds that Scipio Africanus the younger was the first who had himself shaved every day. After him the practice became general until the time of Hadrian, who let his

B.C. from Sicily, as is proved by the public archives of Ardea,[1] and to have been introduced by Publius Titinius Menas. That in older time no barbers existed is shown by the statues of the ancients, for most of them have long hair and a big beard.

11 Cossinius resumed: As the sheep yields up its wool for clothing, so the she-goat gives its hair for the use of sailors,[2] for military engines, and for mechanics' tools. Moreover some tribes are clad in goat-skins, as is the case in Gaetulia and Sardinia. That the practice of wearing them prevailed among the ancient Greeks is evident, as in their tragedies

beard grow, to hide, it is said, scars on the lower part of his face. The Greeks were generally bearded until the time of Alexander the Great. Cf. Alexander ab Alexandro, v, 18. I am convinced that Varro uses *tonsores* here in the restricted sense of "barbers"—and that an entry in a "Common-place book" or his memory, that of a polymath, caused the sudden divergence from the subject.

[1] *Ardea.* Pliny (xxxv, 10) speaks of very ancient inscriptions in a temple at Ardea, and (xxxv, 3) of certain pictures which were older than the city of Rome.

[2] *Ad usum nauticum*, etc. Cf. Geoponica, xviii, 9: "Their hair is used for making ropes and bags and the like—and things for sailors; for what is made of this hair is not easily cut and does not rot." Cf. also Vergil's well-known lines (Georg., iii, 312), on which see Servius, who quotes Varro:

Cyniphii tondent hirci saetasque comantes
Usum in castrorum et miseris velamina nautis.

The military engines are, of course, the *catapulta*, *ballista*, etc.

As for the mechanics' tools I am at a loss—unless their tool bags were of goat-skin.

old men are from this skin called *diphtheriae*, and in comedies those who work on the farm;[1] witness the young man in the Hypobolimaeus of Caecilius, and the old man in Terence's Heauton-
12 timorumenus. Goats are shorn owing to the length of their hair over a large part of Phrygia[2] and from this country come to us hair-cloths and other fabrics of the same kind. But it is said that as such shearing was first practised in Cilicia, the Cilicians affixed the name (Cilicia) to the product.

Here the conversation ended, and Cossinius found nothing to alter in what had been said. And at that moment Vitulus's[3] freedman, coming out from the park on his way to the city, turned off to us and said: I was sent to you, and was on my way to your house to ask you not to shorten the holiday, but to come at once. And so, Turranius

[1] *Rustico opere.* "*On trouve encore les diphthères en France au XIXe siècle: tous les paysans du Maine et des frontières de la Bretagne . . . sont vêtus de peaux de chèvre.*" Dureau de la Malle, Insc. et Belles Lettres, 27 avril 1827.

[2] *Phrygiae.* Dureau de la Malle thinks that these long-haired Phrygian goats are Angoras: "*L'identité des lieux, le caractère des oreilles longues et pendantes* (Aristotle, H. A., viii, 28), *et la circonstance de la grande longueur des poils . . . nous font reconnaître la race des chèvres d'Angora.*" Probably, therefore, these fabrics (*cilicia*) of goats' hair were fine and soft, not resembling the hair-shirt (*cilices*) of the mediaeval ascetic.

[3] *Vituli.* This is the first time that Vitulus has been mentioned. The name is given ii, 1, 10, as a cognomen of the Pomponii.

Niger, my friend, we parted, Scrofa and I through the grounds to Vitulus's house, whilst the rest went some to their own homes, others to Menas's house.

BOOK III

OF SMALLER STOCK

CHAPTER I

INTRODUCTION AND DEDICATION

1 In the history of mankind, my dear Pinnius, we find two modes of life, that of the country and that of the town, and it is obvious[1] that these two differ not only as to place, but as to the time when they began to be. The country life is much the more ancient of the two, seeing that there was once a time when men lived in the country and had no
2 towns at all. For the oldest Greek town known to

[1] *Quidni.* The ante-Victorian MSS. have *Q. Pinni.* The reading *Quidni* of the Archetype restored by Keil from a note of Politian, seems pointless as it is here used. The word is generally used to emphasize a previous statement and is usually followed by a corroborative clause -as often in Catullus. Cf. lxxvii, 1:

Lesbius est pulcher! quidni? quem Lesbia malit, etc.;

lxxxvi, 1:

Gellius est tenuis: quidni? quoi tam bona mater, etc.;

and Varro, in the next chapter, § 15.

Varro, besides, generally uses the friendly *mi* or *noster* of the man to whom he is dedicating a book: cf. ii, Int. 6; ii, 11, 12; iii, 17, 10. Possibly *mi Pinni* was written originally, and *quidni* was the ineptitude of a scribe.

history is the Boeotian Thebes, which was built by King Ogygos;[1] the oldest town in Roman territory Rome, which King Romulus built. With regard to this matter it is possible now, though it was not when Ennius wrote, to say with truth "'Tis a little more or less than seven[2] hundred years since far-famed Rome was founded under august auspices."

3 Well, Thebes, which was founded it is said before the Ogygian deluge, has yet not existed for more

[1] *Ogygos.* Ὠγύγης, King of the Hectenes, who were the oldest inhabitants of Boeotia. The flood which occurred in his time preceded that of Deucalion and Pyrrha (Serv. Vergil, E., vi, 41), and happened, according to Eusebius, 1,040 years before the foundation of Rome.

The Phoenician Cadmus is generally supposed to have founded the Boeotian Thebes; cf. Diodorus Siculus (v, 2), who is followed by Propertius (i, 7), Lactantius, and Statius, and others. The story is familiar (Herod., v, 58, 59). It is highly probable that Thebes was a Phoenician settlement, and the name Cadmus is connected by most scholars with the Phoenician Kadmon, *i.e.*, "the aged one," or "the Oriental." Homer frequently uses καδμεῖοι or καδμείωνες as the name of the ancient inhabitants of Thebes (cf. Il. iv, 385), and the Acropolis there was known in historical times (Xen., Hell., vi, 3, 11) as ἡ καδμεία. Amphion and Zethus built the lower city and walled it: οἳ πρῶτοι Θήβης ἕδος ἔκτισαν ἑπταπύλοιο (Odyssey, xi, 262) though a scholium to this passage makes Amphion the original founder, and Solinus (13) agrees with him.

Varro is followed by Festus: *Ogygia moenia Accius in Diomede appellans significat Thebas quod eam urbem Ogygus condidisse traditur.*

[2] *Septingenti.* Ennius died about 170 B.C. Varro was writing this work in 36 B.C.

than two thousand[1] one hundred years. And if you consider those years with reference to that far-off time when fields began to be cultivated, and man lived in huts and hovels nor knew what a wall or a gate was, you will see that farmers are more ancient than the dwellers in towns by an astounding number
4 of years; and small wonder, for divine nature made the country, but man's skill the towns, and all the arts were discovered in Greece, 'tis said, within the space of a thousand years, but there was never a time when there were in the world no fields which could be cultivated.

And not only is farming more ancient, it is also better; wherefore our ancestors with good reason sent their citizens from the town back to the land, for in peace they were fed by the rustic Romans
5 and in war were defended[2] by them. With good reason, too, did they call the same land by the names of "Mother" and "Ceres," and believed that they who cultivated her lived a holy and useful life, and were all that remained of the race of good King Saturn. And with this agrees the fact that the sacred rites in honour of Ceres are in a special

[1] *Duo milia et centum.* Ogygus must therefore have been at least 350 years old when the deluge, called after him, happened!

[2] *Ducebantur.* In the Archetype was *alebantur* — no doubt an echo from the first part of the sentence. In Victorius's time the *recepta lectio* was *tuebantur*; and this I have translated in preference to Keil's conjecture, *ducebantur.* Victorius produces an inscription found in Spain, in which *tueor* is used in the Passive.

6 sense called *initia*[1] (rites of initiation). The name also of Thebes is no less an indication of the greater antiquity of the country, as it was derived, not from the founder, but from the nature of the district. For in the ancient tongue, and in Greece the Aeolians[2] of Boeotia call hills *tebas*[3] without the aspirate, and in the Sabine country which Pelasgians from Greece visited the term is still used in this sense. Traces of this are to be found in the Sabine country not far from Reate on the Via Salaria, where a slope a mile[4] in length is called *tebae*.

[1] *Initia.* The ancient form of the worship of Ceres, the Italian Goddess of Agriculture, was extremely simple. The *porca praecidanea* was sacrificed at the beginning of harvest and the *praemetium*—the first ears cut—was dedicated to her (cf. Festus, *ad verba*). But after 496 B.C., when at Rome Ceres was identified with the Greek Demeter, the service in her honour was performed there, in the Greek language, and the elaborate ritual of the Eleusinia was adopted together with the ceremony of initiation. Cf. Cicero (De Leg., ii, 9), who quotes from the Twelve Tables: *Neve quem initianto nisi, ut assolet Cereri Graeco more.*

[2] *Aeolis.* The Greek nominative plural Αἰολεῖς. He uses it again, iii, 12, 6, and several times in the De Lingua Latina.

[3] *Tebas.* Scaliger is very angry with Varro because of this derivation. He says that the word means a little boat. The Egyptian Thebes was, in Egyptian, T-ape = "the head," a meaning which would square well with Varro's *collis*; cf. the use of "pen" meaning "head" or "mountain top" in Celtic.

[4] *Miliarius clivus.* The translation given is a guess, perhaps a bad one. Schneider thinks that the expression means a slope or hill on which is a mill-stone -which seems to me much worse—in fact an impossible rendering! Good sense would be

7 The first farmers were unable, owing to their poverty, to distinguish in practice between different kinds of farming, and, being the children of shepherds, both sowed and grazed the same land. The produce[1] then increased and was distributed to different people by means of money, and so it came about that some were called farmers, others shep-
8 herds. Now the shepherd's business, stock-raising, is itself of two kinds, though no one has made the distinction sufficiently clear—the one concerned with animals raised within the precincts of the farm, the other with those which are taken to graze at a distance in the country. The latter kind is well and deservedly known under its other name of *pecuaria*, cattle-raising; and in order to practise it, men of large wealth possess clearings which they have

made by reading *non longe a Reatino miliario* or *a miliario Reate*, i.e., not far from the mile-stone at Reate.

Again, one is not satisfied with Keil's transposition of *cum* which in the Archetype comes immediately before *agri* and makes quite good sense there.

[1] *Quae postea creverunt.* It is difficult to understand how Varro could introduce money at so early a stage in the evolution of society, for he so often emphasizes the fact that it came late in time (and "stamped" money not until the time of Servius). *Peculia* (*Jucundus*) is tempting. "They divided the increase (cattle and corn) as private lots (*peculia*)." For this use of the word cf. Isidore (xv, 17): *Omne enim patrimonium apud antiquos peculium dicebatur a pecudibus, in quibus eorum constabat universa substantia.*

Compare with this passage Lucretius's account of the origin of property (v, 1105, etc.): *Et pecus atque agros divisere. . . .* || *Posterius res inventast aurumque repertum.*

either rented or bought. The former kind, the rearing of animals in the farm buildings, was considered by some, owing to its humble nature, as a mere adjunct to agriculture, though in reality it was a kind of stock-raising, and it has not, so far as I know, been fully set forth as a distinct branch of
9 farming by any one. So, as I considered farming conducted for profit as having three chief divisions: namely (1) the cultivation of the soil; (2) the rearing of cattle; and (3) the raising of animals within the farm-buildings, I made up my mind to make three books. Of these I have written two, the first addressed to my wife Fundania on agriculture; the second on cattle-farming, to Turranius Niger; the remaining third book, which treats of the rearing of animals within the precincts of the farm, I send herewith to you, as I feel that to you more than to any one else I owe this dedication, seeing that we
10 are near neighbours and excellent friends. As you who possess a country-house made beautiful by plaster, inlaid-work, and fine mosaic[1] floors, would have felt that there was something[2] lacking unless its walls had been embellished by your own literary[3] works, so I have done my best by means of

[1] *Lithostrotis.* For these pavements and the history of mosaic in general cf. Pliny, xxxvi, 25. I find it generally stated that *lithostrota* were made of bits of stone or marble of *natural* colours (Seyffert, Dict. of Antiquities, etc.); but Isidore (xiv, 8) is against this conclusion: *Lithostrota parvulis crustis ac tessellis* tinctis in varios colores.

[2] *Parum*, supply *spectandam.*

[3] *Tuis quoque litteris.* Nothing is known of this Pinnius, or

this treatise to embellish it with the produce of the farm. I now therefore send it to you remembering the conversations we once had on the subject of the perfect country house, and I will here make a beginning by relating them.

CHAPTER II

ON VARIOUS KINDS OF VILLAS

1 It was at an election of aediles and the sun was hot, when I and Q. Axius the senator, who belonged to my tribe, having recorded our votes, were

of any literary work bearing his name. But, if the text be sound, these words must refer to works written by Pinnius. Gesner conjectures *tui*, and considers the meaning of the passage to be "unless your walls were also adorned with literary works," *i.e.*, unless there were a library in the villa. But the position of the enclitic *quoque* would still emphasize the word *tui*. One suspects the genuineness of *tuis*.

Perhaps *ni nitidis quoque litteris* was written by Varro, "unless its walls were adorned with beautifully bound literature also." *Nitidus* would be no bad epithet for the *novi libri* of a Suffenus.

Novi umbilici, lora rubra, membrana
Directa plumbo et pumice omnia aequata.

The syllable *ni* in *nitidis* might have dropped out of the text owing to the *ni* immediately before it. The general sense of the passage is clear: Just as the inside of a villa is improved by a library, so is the outside by cocks and hens, doves, peacocks, etc., which are the subject of this third book dedicated to Pinnius.

waiting to attend on his way home the candidate whom we supported. Said Axius to me: Suppose while the votes are being counted[1] we make use of the shelter of the Villa Publica[2] (People's Hall) instead of making one for ourselves with the bench[3]

[1] *Diribentur.* Literally, "shall be divided." The *diribitores* divided the votes (*tabellae*) as they were taken out of the chests (*cistae*), and handed them over to the *custodes*, who checked them off by dots made on a waxed tablet.

[2] *Villa Publica.* Cf. Livy, iv, 22: *Eo anno* (434 B.C.) *C. Furius Pacilus et M. Geganius Macerinus Censores Villam publicam in Campo Martio probaverunt: ibique primum census populi est actus.* The purposes for which it was used are stated in the next chapter, § 4. Some remains of it still exist, cf. Middleton's Rome.

At the time of these conversations (54 B.C.), Cicero and "the friends of Caesar" were about to build marble saepta for the Comitia Tributa, and a new Villa Publica (Ad Atticum, iv, 16).

[3] *Tabella dimidiata.* The text here is assuredly corrupt, and the emendations and explanations of Jucundus, Ursinus, Gesner, Scaliger, and the rest are *merae nugae.* I have translated as best I could, taking *umbram* which is understood here in the sense given to it by Festus (*ad verbum*): *Umbrae vocantur Neptunalibus casae frondeae pro tabernaculis.* The rustics, at the festival of Anna Perenna (Fasti, iii, 523), made themselves shelters against the sun with boughs of trees, or by sticking reeds into the ground and stretching their togas over them.

Sub Jove pars durat, pauci tentoria ponunt
Sunt quibus e ramis frondea facta casa est
Pars ubi pro rigidis calamos statuere columnis
Desuper extentas imposuere togas.

Perhaps the *tabella* (whatever it was) might have been used together with leafy boughs as a protection against the sun.

Instead of *tabella*, *taberna* has been proposed in the sense of *tabernaculo.* And it is quite likely that a candidate used to

which we share between us, provided by a private candidate. Well, I answered, I am of opinion that, true as is the proverb "bad[1] advice is worst for the adviser," it is equally true that good advice must be considered good both for the adviser and the advised. And so to the People's Hall we went.
2 There we found the augur[2] Appius Claudius sitting on one of the benches, ready for the consul in case any circumstance should call for his services. On his left sat Cornelius Merula (Blackbird), belonging to a consular house, and Fircellius Pavo (Peacock)

provide some sort of shelter for his personal friends who were there to support him. But then what is to be made of *aedificemus?* and *dimidiata? Viderint doctiores!*

[1] *Malum consilium*, etc. In explanation of the proverb Gellius (iv, 5) tells a story which, he says, he found in the Annales Magni: A statue of Horatius Cocles had been struck by lightning—a prodigy concerning which the Etruscan haruspices were consulted as usual. But at that time the Etruscans were bitterly hostile to Rome, and the haruspices purposely gave bad advice to the Romans. The former were arrested, confessed the crime, and were executed. Whereupon this witty verse was composed and sung by boys all over the city: *Malum consilium consultori pessimumst.* Gellius also notes that the verse is a translation of Hesiod's ἡ δὲ κακὴ βουλὴ τῷ βουλεύσαντι κακίστη (ἔργων και ἡμερῶν, i, 264).

[2] *Augurem.* An augur, or augurs, was always present at the Comitia to take the auspices, etc. For an excellent account of their duties cf. Alexander ab Alexandro, v, 19. Varro, at the end of Bk. vi (L.L.) speaks of the augur attending on the Consul at the Comitia Centuriata: *Hoc nunc fit aliter atque olim, quod augur consuli adest tum cum exercitus imperatur* (when the people were ordered to assemble for the Comitia) *ac praeit quid eum dicere oporteat.*

of Reate, on his right Minucius Pica (Jay), and M. Petronius Passer (Sparrow). When we joined them, Axius smiling said to Appius: Will you let us come into your aviary where you are sitting
3 amongst the birds? I certainly will, answered Appius, and you rather than another, for I can still taste the birds that you set on the table when you entertained me a few days ago at your villa at Reate. I was then on my way to Lake Velinus on business connected with disputes[1] between the

[1] *De controversiis.* The quarrel arose through the draining of Lake Velinus (now Lago di S. Susanna), which appears to have done harm to the people of Interamna, good to the Reatini. In fact, according to Servius (Aen., vii, 712), the extraordinary fertility of the Rosean country (part of the Ager Reatinus), mentioned by Varro (i, 7, 10), dated from the time, when M. Curius let out Lake Velinus into the river Nar "by cutting through the mountain." It is most interesting to find that it was Cicero himself who conducted the case for the men of Reate, and that he stayed on that occasion with Axius. Cf. Ad Atticum (iv, 15): *Reatini me ad sua Tempe duxerunt ut agerem causam contra Interamnates apud consulem et decem legatos; quod lacus Velinus a M. Curio emissus interciso monte, in Narem defluit: Ex quo est illa siccata, et humida tamen modice Rosea. Vixi cum Axio.* Appius was probably one of the *decem legati.* This letter of Cicero's fixes the time of these conversations, for it was written in 54 B.C., when Appius Claudius Pulcher and L. Domitius Ahenobarbus were consuls. It is singular than an Appius Claudius was also an augur. Can it be that the consul and the augur were the same man, for we know from Cicero's letters (Ad Diversos, bk. iii, *passim*) that the Consul had been an augur at the same time as Cicero, and had written a book, *De iure augurali*, which he dedicated to him?

people of Interamna and Reate. But, he went on, isn't this villa, built by our ancestors, in severer taste and better than your luxurious mansion at
4 Reate? Can you see any citrus wood or gold here, any vermilion or azure, any coloured[1] or marble mosaic—all of which your house possesses in lavish profusion? Besides, this house is the property of a whole people, yours belongs but to yourself. To this resort Roman citizens from the Campus Martius and men of all nations; to yours, mares and asses. Again this serves for the conduct of State affairs, for it is here the cohorts meet when brought before the Consul on the occasion of a levy, here that the inspection of arms takes place, and the censors convoke the people for the census.

5 Of course, said Axius, this public mansion of yours on the edge of the Campus Martius is merely useful? Its decorations did not cost more than those of all the villas of Reate put together, did they? Why, its walls are plastered with pictures, and statues as well, while mine shows never a trace of Lysippus[2]

[1] *Emblema.* ἔμβλημα means in Greek any ornament in raised work—such as jewels, etc., which could be removed. In Latin the word denotes a tessellated pavement of various colours. The *emblema vermiculatum* of Lucilius (Cic. Orator, 149), is supposed to owe its name to the resemblance of the pattern to the contortions of worms. Nonius, however, has *vermiculatum pro minuto atque miniato*, small and coloured with red lead.

[2] *Lysippi.* Lysippus was a great sculptor, *statuarius nobilissimus* (Cic., Brut., 86), contemporary with Alexander the Great, who would allow none other but him to carve his likeness; all his statues were in bronze. Of one—the Apoxyomenus

or Antiphilus,[1] though many of the hoer and the shepherd. And my villa has a large farm attached, a farm made clean[2] and neat by cultivation, while yours hasn't a rood of land or a single cow or mare.

6 And finally, what likeness has yours to the country-house owned by your grandfather and great-grandfather? It has not seen, as the latter saw, hay in the hay-loft, the vintage in the wine cellar, the corn in the granary. For because a building is outside the city it does not follow that it is a country-house any more than is the building belonging to people living outside the Porta Flumentana[3] or in the Aemilian[4] suburb.

7 As it appears, said Appius with a smile, that I don't know what a country-house is, please to en-

—there is a glorious marble copy in the Vatican Museum at Rome.

[1] *Antiphili.* Antiphilus was contemporary with Lysippus and Apelles, and was famous especially for his *genre* pictures: *e.g.*, a boy blowing a fire, women dressing wool, etc. He painted a humorous picture of a man called Gryllus (γρύλλος = pig), and ever afterwards caricatures were called *grylli.*

For both him and Lysippus cf. Pliny, xxxv, 10, 11.

[2] *Polito.* Nonius: *Politiones agrorum cultus diligentes ut polita omnia dicimus exculta et ad nitorem deducta. Ennius Satyrarum lib. iii, lati campi quos gerit Africa terra politos.*

[3] *Porta Flumentana.* Close to the Porta Carmentalis, and nearer than it to the Tiber. Festus: *Flumentana Porta Romae appellata quod Tiberis partem ea fluxisse affirmant.* Hortensius, Cicero's rival, had a house close to it (Ad Atticum, vii, 3).

[4] *Aemilianis.* The Aemiliana, probably a part of the town in the Campus Martius near the Saepta. Cf. Suetonius, Claudius, 18.

lighten me, lest I err through ignorance, for I am intending to buy one near Ostia, from M. Seius. But if buildings are not villas unless they contain your £320 ass that you showed me at your place, then I am afraid I may be buying a Seian[1] house (a white elephant) on the shore instead of a villa.
8 Now my friend here, Lucius Merula, made me eager to acquire this building by saying, after a visit of a few days to Seius, that he had never been entertained in a villa he liked so well, though he saw there no picture, nor a single bronze or marble statue, nor yet the apparatus for wine-pressing, nor
9 oil-jars or olive-presses. Why, replied Axius, looking at Merula, what kind of a villa is that which has neither the decorations of a suburban villa nor the implements to be found in a farm-house? Well, said Merula, is not your house,[2] situated at a bend of the river Velinus, though neither painter nor plasterer ever set eyes on it, to be considered just as much a villa as the other at Rosea which is adorned with plaster-work in the best taste, and is
10 owned by you in common with your ass? Axius

[1] *Aedes Seianas.* Unless there be an allusion here—which no one seems to have noticed—to the celebrated Seian horse which, like the gold of Tolosa, invariably brought disaster to the possessor of it, Varro's words seem pointless. The *equus Seianus* belonged successively to Cn. Seius, Dolabella, Cassius, and Antony, all of whom perished miserably. *Hinc proverbium de hominibus calamitosis ortum, dicique solitum "Ille homo habet equum Seianum"* (Gellius, iii, 9).

[2] *Villa ad angulum Velini.* This was the *villa* at which Cicero stayed in 54 B.C. Cf. § 3 of this chapter, with note.

admitted with a nod that a house which was merely a farm-house was just as much a villa as one which was both a suburban mansion and a farm-house as well, but wanted to know what inference his friend drew from the facts. What inference? said he, why, if we must approve your farm because animals are fed there, and if it is properly called a "villa," because cattle are fed and stabled in it, the estate of which I speak should with equal reason be called by that name, as great profits are made
11 in it by feeding animals. For what does it matter whether you make your profit out of sheep or birds? Or do you think the return from the oxen on your farm—which give birth to bees—sweeter than that from the honey-bees which work in the bee-hives at Seius's villa? Do you get more[1] from the pork-butcher for the boar-pigs reared there than Seius does from the man in the market for the wild boars
12 bred on his estate? But what prevents me, said Axius, from having bees and wild boars on my villa at Reate? Unless indeed the honey made at Seius's is Sicilian,[2] that at Reate the bitter

[1] *Pluris.* Probably much less, for the flesh of the wild boar was much esteemed, especially *Cullum aprugnum* and *lumbi aprugni.* Cf. Macrobius, ii, 9, where the menu of a *cena pontificum* is given. It included, amongst many other things, hedge-hogs, raw oysters (*quantum vellent*), field-fares, asparagus, a fat chicken, oyster patty, boiled moor-fowl, hares, various roast meats, haggis, Picentian rolls, and *lumbi aprugni* and *sinciput aprugnum.*

[2] *Siculum.* The most famous honey came from the bees of Mount Hybla in Sicily.

Corsican[1] kind, and unless the acorns he buys make the boars fat on his estate, while on mine those which I get for nothing make them thin? But, replied Appius, Merula does not say that you couldn't fatten the same animals as Seius, only, as I have
3 seen with my own eyes, you don't. Now there are two[2] kinds of feeding; the one is conducted out in the fields, under which head comes cattle-raising; the other within the home buildings, where are reared hens, doves, bees, and the other animals which are usually fed there. On the latter we possess special treatises by Mago of Carthage and Cassius Dionysius, as well as scattered observations to be found in their longer works; and these Seius has apparently read to such good purpose that he makes more profit out of a single villa by this method of feeding than other people
4 do out of a whole farm devoted to agriculture. It is true, said Merula, for I have seen there great flocks of geese, hens, doves, cranes,[3] and peacocks, as

[1] *Corsicum.* The Corsican honey was bitter because the bees fed on wormwood (Dioscorides, ii, 102). Isidore (xx, 3) makes the same statement about the Sardinian: *Sardum amarum est absinthii causa: cuius copia eius regionis apes nutriuntur.*

[2] *Cum sint.* These *anacolutha* are common in Varro. Cf. i, 1, 2; ii, 1, 3; iii, 16, 2, 8.

[3] *Gruum.* Both cranes and storks were fattened for table. At one time storks were preferred, though in Pliny's time no one would touch one (Pliny, x, 23). Peacocks, of course, at the time when Varro wrote this book almost always appeared at a dinner of ceremony. In one of Cicero's letters to Atticus he

well as hosts of dormice, fishes, wild boars, and other game. And the freedman who keeps his books—he once waited on Varro and used to entertain me when his patron was away—told me that his master used to make out of his villa by means of them more than 50,000 sesterces (£400) a year. As Axius seemed amazed, I remarked to him: Doubtless you know my maternal aunt's farm in the Sabine country, which is twenty-four miles from
15 Rome on the Via Salaria? Naturally, said he, as in summer when I am going to Reate from Rome I generally break the day there at noon, or on my way back in winter pitch my camp there at night. Well, I added, in this villa the aviary alone turned out to my knowledge five thousand fieldfares worth three denarii (2*s.* 6*d.*) apiece, so that in that year that department of the villa made 60,000 sesterces (£480), which is twice[1] as much as your farm of 200 iugera (130 acres) makes. What! sixty thousand,

speaks of having given Hirtius a dinner *sine pavone*! Plutarch gives a horrid account of the fattening of cranes: ἄλλοι γεράνων δμματα ἀπορράψαντες καὶ ἀποκλείσαντες ἐν σκότει πιαίνουσι κ.τ.λ. (De Esu Carnium, ii, near the beginning).

[1] *Bis tantum quam.* Is this Latin? I can, after diligent search, find no instance of this use either in Varro or elsewhere. The nearest parallel I can discover is in Columella (i, 8, 8), *duplicia quam numerus servorum exigit*, but this is not so violent as *bis tantum quam.* I imagine that what was written is *bis tantū quantū tuus.* The scribe, suspecting his predecessor of dittography, would without hesitation write *quam tuus.* On the other hand it may be a colloquial inaccuracy.

said Axius, sixty, *sixty*! you are joking. *Sixty*, I
6 repeated. Well, but to make this haul,[1] said he, you'll want a banquet,[2] or somebody's triumph such as that of Metellus Scipio in former days, or club[3] dinners, which now in endless number inflate the market price of provisions. Every year, said I, you may look for such a return, and, I hope, your aviary will pay[4] its way; in these days of luxury it happens

[1] *Bolum.* βόλος=(1) a cast of a net (pure Latin *iactus*), (2) the thing caught. Cf. Euripid. (Electra, 582):

ἣν ἐκσπάσωμαί γ' ὅν μετέρχομαι βόλον.

Plautus (Rudens, 360) uses the word in the first sense:

Nimis lepide iecisti bolum, periurum perdidisti.

Terence (Heauton., 673) in the second:

Cruciór bolum mihi tántum creptum tám desubito e faúcibus,

though the older commentators consider this to be a different word—the Latin form of the Greek βῶλος, "a lump."

[2] *Epulum.* Columella (viii, 10, 6) understood this in the limited sense of a banquet in celebration of a triumph. *M. Terentius ternis saepe denariis singulos emptitatos esse significat avorum temporibus, quibus qui triumphabant* populo dabant epulum.

[3] *Collegiorum.* The reference is probably not to the four great *collegia* of the priests in particular, but to the *collegia artificum, sodalicia*, etc., as well.

[4] *Non decoquet. Decoquere* is used by Cicero to denote ruinous extravagance. Cf. Phil., ii, 18: *tenesne memoria te praetextatum decoxisse*, i.e., *patrimonium tuum.* Pliny (xxi, 6) has: *Serere in Italia minime expedit, ad scrupula usque singula areis decoquentibus*—"eating up $\frac{23}{24}$ of the gain," so Gronovius interprets. Here I conceive the meaning to be: "Your aviary will not eat up the profit (or *hanc summam*) by the expense of its up-keep."

but rarely that you are deceived; for how few are the years in which you don't see a solemn banquet, or a triumph, or in which the clubs do not feast. More than that, he answered, modern luxury creates what one may call a daily banquet within the gates
17 of Rome. Was[1] it not, I went on, a frequent statement of L. Abuccius, a most cultured gentleman, as you know, whose satires are modelled on those of Lucilius, that his farm in the Alban country was always beaten by his villa and the animals it bred, for the land made less than 10,000 sesterces (£80), the villa more than 20,000 (£160)? It was he too who stated that if he could have had his villa in a place of his own choosing near[2] the sea he would have made out of it more than 100,000 sesterces (£800). And again, quite recently, when M. Cato became guardian to young Lucullus,[3] did

[1] *Nonne.* Here Varro goes on again.

[2] *Secundum mare.* So that it might be possible to build fish-ponds, which were enormously profitable.

[3] *Luculli.* This was the son of the well-known L. Lucullus who fought against Mithridates. When L. Lucullus died he left a little boy, and in his will made Cato (Uticensis), the uncle of the boy, his guardian. It is in keeping with Cato's character that one of his first acts was to sell his ward's fish-ponds as being an unnecessary luxury. Columella, at any rate, says that the fish-ponds (not fishes) were sold for 400,000 sesterces (viii, 16, 5). Pliny also says fish-ponds, and makes the price paid still greater, namely, four million sesterces (ix, 54). The words in Varro's text, *quadraginta milibus sestertiis*, can only mean 40,000 sesterces. Cf. iii, 16, 11: *dena milia sestertia.* Macrobius (ii, 11) agrees with Varro (he alludes to this passage) as to the price, but makes Cato the heir!

he not sell his ward's fishes for 40,000 sesterces
18 (£320)? Said Axius: My dear Merula, take me, I implore you, as your pupil in the art of feeding animals within the villa. Certainly, and as soon as you promise the school-fee, I will begin. Well, I don't refuse, and you can have it to-day, or later many times over from the animals I shall feed under your tuition. Ah yes, said Appius, whenever one of these animals dies (a natural death), say a goose or a peacock! Well, said Axius, what does it matter if you eat birds or fishes that have died, seeing that you never eat them except when dead? But please set me now in the way of the scientific practice of the art, and expound its scope and method.

CHAPTER III

OF ANIMALS FED WITHIN THE VILLA

1 MERULA began without demur.

In the first place the owner should have a knowledge of those things which can be reared and fed in and about a villa with a view to the master's profit or pleasure. Of this art there are three sections, concerned respectively with aviaries, warrens,[1]

[1] *Leporaria.* Gellius (ii, 20), who quotes this passage, says that in his own time they were commonly called *vivaria*—"a word which has not the support of any ancient writer"; in Scipio's, *roboraria*, from the oaken planks with which they were fenced.

and fish-ponds. The word "aviary," in the sense in which I now use it, covers all winged things which are fed within the walls of the villa. "Warren"
2 I want you to understand not in the sense our grandsires used the word—as a place in which were only hares[1]—but as any enclosure attached to the villa which contains shut up in it animals to be fed. In the same way I mean by fish-pond any pond, be the water fresh or salt, which has fish confined in it
3 close to the villa. Each class of the things mentioned may be subdivided into at least two divisions: those animals which are content with dry land alone—peacocks for example, together with doves and fieldfares—belong to the first, while under the second division come those for which dry land alone is insufficient, as they need water as well; such as geese, teal, and ducks. In the same way the second division I mentioned above as connected with hunting, has two separate classes, the one including wild boars, roes, and hares, the other, animals which are also without the villa, such as
4 bees, snails, and dormice. Similarly the third class of aquatic creatures has two divisions, for men keep fishes, some in sea-water, and some in fresh.

Now with regard to these six divisions: you must get three kinds of craftsmen corresponding with the three classes I mentioned to you just now, namely, fowlers, hunters, and anglers, or else you must buy from them animals which may be committed to the

[1] *Soli lepores.* Cf. iii, 12, 6, where the word includes *cuniculi*, rabbits.

care of your own slaves, and by them looked after during pregnancy until the young ones are born. These when born will be reared and fattened until they are ready for the market. There are, too, certain other animals which must be added to the villa's stock, animals which do not call for the nets of fowlers, hunters, or fishers—such as dormice, snails, and hens.

5 Now of these creatures those which are kept within the precincts of the villa were the first to which men gave their attention—for in the earliest times it was not only the augurs who procured chickens in order to take the auspices, but the heads of families in the country did so as well. In the second place came those animals which, being used for hunting, are enclosed near the villa by a wall, and close to the villa the bee-hives, for bees originally were kept under the eaves[1] of the farmhouse, and had the shelter of its roof. Third in order of time were fresh-water fish-ponds which men began to make for the fishes that had been caught in the
6 rivers. Each of these classes has two stages, the earlier, which the thrift of antiquity adopted, the later, that elaborated by modern luxury. For the first stage was reflected in the excellent old-time

[1] *Sugrundas* = γεῖσα, the projecting part of the roof. Pliny (xxv, 13) speaks of the house-leek, *hypogeson*, so called *quod in subgrundiis fere nascitur.* Cf. Columella (ix, pref., § 2): *Apibus quoque dabatur sedes adhuc nostra memoria vel in ipsis villae parietibus excisis, vel in protectis porticibus.* The γρόνθοι ξύλινοι (Mathem. Vet) were projecting supports.

practice of our ancestors which allowed but two "aviaries," namely, on the surface of the ground a farmyard in which hens were fed—and their return was eggs and chickens—and above the ground a second place in which were pigeons in turrets or on the roof of the villa. But nowadays aviaries have
7 changed their name, being called "ornithones," and those acquired by the modern epicure have buildings for lodging fieldfares and peacocks more extensive than were entire villas in former times.

8 Now with regard to the second section—the warren—your father, Axius, never in his life saw anything as the result of his hunting more than a paltry hare. For the big walled-in enclosure made to hold wild boars and roes in large numbers did not exist in his time. While you, said he, turning to me, when you bought your estate at Tusculum from M. Piso,[1] found wild boars in plenty in the
9 warren, did you not? Touching the third section: in ancient times did any one dream of having any but a fresh-water fish-pond, or other fish in it than "squali" and "mugiles"? but now every man of refined[2] taste tells you that he would as soon keep

[1] *M. Piso.* M. Pupius Piso Calpurnianus, who was Consul in 61 B.C. He is frequently mentioned by Cicero as a friend of the notorious Clodius (Ad Atticum, i, 14). In the De Finibus (v, 1) he is made to champion the Peripatetic doctrine concerning the *summum bonum.*

[2] *Minthon.* Keil substitutes this word for the *rhynton* of the Archetype, and for the meaning quotes Philodemus of Gadara, who defines *μίνθων* as a supercilious fop "who looks down upon everybody and depreciates all whom he meets or

a pond full of frogs as of these fishes. Philippus[1] once—the story is familiar—called upon his friend Ummidius[2] at Casinum, and a fine *lupus*[3] (pike)

hears of even if they be people reputed great," etc. The word is derived from *μινθα*, mint. Cf. the *muguets* (lilies) of the time of Louis XIV.

[1] *Philippus.* Probably L. Marcius Philippus (Cons. 91 B.C.), whom Cicero describes (De Orat., iii, 1) as *homini et vehementi et diserto et imprimis forti ad resistendum.* And again (Brutus, 47): *Sed tamen erant ea in Philippo . . . summa libertas in oratione, multae facetiae . . . in altercando cum aliquo aculeo et maledicto facetus.*

[2] *Ummidius.* Perhaps the Ummidius of Horace (Sat., i, 1, 95):

> *Ummidius quidam—non longa est fabula—dives*
> *Ut metiretur nummos, ita sordidus ut se*
> *Non umquam servo melius vestiret ad usque*
> *Supremum tempus,* etc.

There is an inscription kept by the monks of Monte Cassino which sets forth that the theatre at Casinum (Cassino) was built at the expense of Ummidia (Quadratilla)—a lady described by Pliny (Epist. vii, 24) as being very fond of "pantomimi." This theatre, in moderately good preservation, stands about 300 yards from the poor remains of Varro's villa. The characters assigned to the two men by Cicero and Horace accord well with Varro's story. The wealthy miser gave Philippus a dinner, and the fish was the cheap *lupus* instead of the usual mullet, sturgeon, or lamprey, and Philippus showed his resentment in such a manner as we should expect from Cicero's description of him.

[3] *Lupus.* This fish was much esteemed by the contemporaries of Lucilius. One of them, in a Zolaesque description of the debauchery of the young nobles of that time, gives an account of their behaviour in Court. "He is so drunk that he can hardly keep his eyes open, and, when they rise for

taken from your[1] river was set before him. He tasted it, then spat it out with the remark, I'll be
10 hanged if I didn't think it was fish. Then our generation, not content with the extravagant extension of its warrens, has pushed its fish-ponds up to the sea and summoned to them swarms of deep-sea fishes. Was it not from these that Sergius Orata[2] (gold-fish) and Licinius Murena (lamprey) got their names? And who but knows—so famous are they—of the fish-ponds of Philippus, Hortensius, and the Luculli? Well, Axius, tell me, where do you want me to begin?

discussion, he says, 'What the deuce have I to do with these idiots? How much better it would be for us to go and drink *mulsum* mixed with Greek wine, and eat a real fine *lupus* caught between the two bridges'" (Macrobius, ii, 12, end).

Pliny (xxxii, 2) says that the *lupus* is not so intelligent as the *mugil*, "which knows that the bait conceals a hook," but is more vigorous, for "when it is hooked it dashes wildly backwards and forwards, making the wound wider, until at last the hook comes away."

[1] *E tuo flumine.* Cf. iii, 5, 9: *Cum habeam sub oppido Casino flumen quod per villam fluat.* This was the river Vinius, now called *Il Rapido.*

[2] *Sergius Orata.* Cf. Columella, viii, 16, 5: *Velut ante devictarum gentium Numantinus et Isauricus, ita Sergius Orata et Licinius Muraena captorum piscium laetabantur vocabulis.* Sergius Orata first had hanging baths, "first laid down oyster beds at Baiae," etc. (Macrobius, ii, 11).

CHAPTER IV

OF BIRDS IN GENERAL

1 I, REPLIED Axius, should like you to begin with the "post-principia,"[1] as they say in camp—with modern times, I mean, rather than with remoter ages, for more profit is made out of peacocks than out of hens. And what is more, I will not conceal my wish to hear first about the "ornithon," since fieldfares have made it a term synonymous with "gain," for the 60,000 sesterces (£480) of Fircellia[2] have wonderfully stimulated my desire.

2 Said Merula: There are two kinds of aviary. One (and it has many admirers) made for pleasure,

[1] *A post-principiis.* Cf. Plautus (Persa, iv, 1, 4):

Atque edepol ferme ut quisque rem accurat suam
Sic ei procedunt postprincipia denique
Si malus aut nequamst male res vortunt quas agit.

And Gellius (xvi, 18): *Sed haec, inquit M. Varro, aut omnino non discimus aut prius desistemus quam intelligemus cur discenda sint. Voluptas autem inquit vel utilitas talium disciplinarum in postprincipiis exsistit cum perfectae absolutaeque sunt, in principiis vero ipsis ineptae et insuaves videntur.*

Barn-door fowls were the *principia*, peacocks the *postprincipia*. The word, used metaphorically, is fairly common. Cf. Cicero (Pro Sestio, 55): *postprincipia vitiosae vitae*; but of its use in the literal sense I can find no trace. It is not noticed in Kempf's Sermonis Castrensis Reliquiae.

[2] *Fircellina.* Cf. iii, 2, 15. Varro's maternal aunt must therefore have been called Fircellia.

such as that of our friend Varro here, who has built one close to Casinum; the other for profit, to which kind belong the enclosures which certain people who supply the market possess in Rome and in the country—the latter being generally let to tenants in the Sabine district, as there, owing to the nature of the soil,[1] fieldfares are to be found in large num-
3 bers. Lucullus claimed that the aviary on his Tusculan estate made by combining these two kinds, formed a third kind. It was built so as to have in the same building—in the "ornithon," that is—a dining-room, where he could dine delicately and see fieldfares, some lying cooked in the dish, whilst others fluttered about the windows of their prison. But the experiment failed because the sight of birds fluttering on the inside of windows does not please the eye as much as the disagreeable smell which fills one's nostrils offends the nose.

CHAPTER V

OF FIELDFARES

1 HOWEVER, Axius, as I think you prefer it so, I will first discuss the aviary built for profit, whence, not where,[2] fatted fieldfares are taken. Well, a large

[1] *Agri naturam.* The country about Casinum abounded in olive plantations, and fieldfares are very fond of olives.

[2] *Unde non ubi.* I have translated Varro's play upon words literally. He means, of course, that he will describe the kind

domed building, a peristyle,[1] as it were, covered with tiles or net, is constructed, in which several thousands of fieldfares and blackbirds may be en-
2 closed, though some people add to them other birds as well, which, when fattened, fetch a good price, such as ortolans[2] and quails. Into this building water should be brought by means of a pipe, and it had better then flow slowly along narrow troughs such as can easily be cleaned out (for if the water spreads over a large area it is more easily fouled and it is not so good to drink), and the overflow[3] from these should be taken off by a pipe, lest

of aviary from which birds are taken (*sumuntur*) to the market, not that of Lucullus, in which they are eaten (*sumuntur—consumuntur*).

[1] *Ut peristylum.* Keil thinks the text sound here, Schneider proposes *aut*, and remarks that a *testudo*, the essential part of which was its dome, would need neither tiles nor net.

[2] *Miliariae.* Cf. Varro, L. L., v, 11: *Ficedulae et miliariae a cibo quod alterae fico alterae milio fiant pingues.* The Greek word κέγχρος means "millet," and κεγχρίς seems to be the "ortolan."

[3] *Caduca.* Keil quotes here Fronto (De Aquis, ii, 94), to show that *aqua caduca* was a technical phrase to indicate the overflow from a tank or the droppings from a pipe, and goes on to remark: *Ex quibus apud Varronem dilucida fit verborum coniunctio, in qua interpretes haeserunt.* But I cannot see how this gets over the difficulty perceived by Ursinus and Schneider.

The water goes in by a pipe, is distributed along several small runnels or troughs (*canales*) which converge at the further end of the aviary to another pipe by which it flows out (*exit*)—so that there is a continuous flow of fresh and clean water. This seems to be the obvious meaning. But then what is to be done with the words *quae abundat?* How

3 the birds be harmed by the mud. The aviary should have a door low and narrow, and preferably of the kind called "coclia"[1] (rotating cage), such as is usually found in the amphitheatre where bulls fight. It must have but few windows, through which the trees and birds outside cannot be seen, for the sight of these and the longing for them make the imprisoned birds pine away. The place should have just enough light to let them see where to perch and where to find their food and water. About the doors and windows there should be a coating of smooth plaster, that no mouse or other
4 animal may anywhere enter. Around the walls of this building on the inside should be many poles

can water which actually overflows be made to go out *per fistulam?* So Ursinus proposed to expunge these words as being a gloss explicative of *caduca.* These removed the translation would go smoothly: "And the falling water (running down the gutters) goes out from them by means of a pipe."

Columella's description of the way in which water is supplied to the hen-house is interesting (viii, 3, 8): *Sunt qui aut aqua replentur aut cibo plumbei canales, quos magis utiles esse ligneos aut fictiles compertum est. Hi superpositis operculis clauduntur et a lateribus super mediam partem per spatia palmaria modicis forantur cavis ita ut avium capita possint admittere.*

[1] *Quod cocliam appellant,* etc. I have given Gesner's interpretation of this passage; Schneider in his index takes *coclia* to be equivalent to *cataphracta, i.e.,* a sort of portcullis. I have translated *cavea* amphitheatre with Gesner, but suspect the text. In Horace (A. P., 473) it means the cage itself:

ac velut ursus
Obiecto caveae valuit si frangere clatros.

for the birds to perch on, and also rods sloping to the ground from the wall, with other rods fastened cross-wise like the rungs of a ladder, and resembling the railings in a theatre. Water should flow down to the ground for them to drink, and for food cakes should be placed there. These cakes are mostly made of figs and barley well mixed together and rolled. Twenty days before fieldfares are wanted they are given a more liberal diet, that is, more food is set before them, and the flour now used is of a finer quality. In this building there should be recesses furnished with several shelves to supple-
5 ment the perches, and, on the other hand, it is here (on the shelves) that the bird-keeper[1] generally keeps on the spot those birds which have died in the aviary, so as to account for them to his master.

When those birds that are fit are to be removed [for sale] from this aviary, they must be transferred

[1] *Aviarium.* The Archetype has *contra hic aviarium*, etc. Much has been written about this passage by Gesner, Schneider, Keil—the latter indicating a supposed lacuna in the text by a star—so that it is with much distrust *iudicoli mei* that I propose what appears a very simple and almost certain emendation, namely, *aviarius* instead of *aviarium.* The bird-keeper (*aviarius*) will keep any birds here that have died until his master sees them, etc. Thus there is a subject to *solet*, which is badly wanted, for though with Varro there is often an ellipsis of *dominus*, I can find no instance where the word slave—not previously mentioned—must be supplied. So, too, there is no need to change the *hic* of the Archetype into *hoc*, there is no lacuna, and the whole sentence is irreproachable both in sense and construction.

to a smaller one, which is united to the larger by a door, and has more light. This is called the "Seclusorium." When the owner has thus enclosed the number he purposes to sell he kills them
6 all. This is done in secret and away from the others lest these seeing it should mope, and die at a time inconvenient to the seller.

Fieldfares do not resemble other immigrant birds in breeding on the ground like storks, or under the roof like swallows—their masculine name (*turdi*) by the way does not imply that there are no females amongst them, any more than the feminine name for blackbird (*merula*) prevents blackbirds from
7 being some of them males. Again, some birds are migratory, such as swallows and cranes; others, as doves and hens, are indigenous, and it is to the former immigrant kind that fieldfares belong, for they fly across the sea to Italy every year about the autumnal[1] equinox, and about the spring equinox fly back to the same place [whence they came]; so at a different season do turtle-doves and quails in vast numbers. This fact is made clear in the neigh-

[1] *Circiter aequinoctium autumnale*, etc. This passage is important as fixing the meaning of the word *turdus* used by Varro, Horace, etc., as it accurately describes the migratory habit of the *turdus pilaris* of Linnaeus—the fieldfare—which visits this country in October, and leaves it in May for its northern breeding places.

The *fenerator Alphius* of Horace's delightful second epode speaks of snaring *turdi* in the winter:

Aut amite levi rara tendit retia
Turdis edacibus dolos.

bouring islands of Pontiae,[1] Palmaria, and Pandateria, for there on their first flight—when they came that is—they stay a few days to rest, and also on crossing the sea on their way back from Italy.

8 Said Appius to Axius, You have only to put here five thousand[2] birds, and supposing a public feast or a triumph take place, you have at once the 60,000 sesterces[3] (£480) you want, and may then lend them out at good interest.[4] Then turning to me he said, Now tell us, please, about the second kind of aviary, the one which, we are told, you built for your pleasure near Casinum, by it surpassing, men say, not only the original aviary of our friend the inventor, M. Laenius Strabo,[5] who was our host at

[1] *Pontiis.* Palmaria (Palmarola), Pontia with Sinonia (Ponza), and Pandateria (Vandotena), are small islands lying about thirty-five miles off the coasts of Latium and Campania.

[2] *Quinque milia*, i.e., the *quinque milia turdorum* mentioned in chap. ii, § 15.

[3] *Sexaginta milia*, the sum mentioned (iii, 2, 15), which took Axius's breath away.

[4] *In fenus.* Frequent allusion is made in this book to the cupidity of Axius. When he hears of the profits made out of *villatica pastio*, he is on fire to learn the art (2, 19); Merula, about to discuss aviaries, says that he will begin with that which is a source of gain, as he knows Axius will prefer this (5, 1); Appius, after having given the natural history of bees, says that he knows Axius must be bored to death, *quod de fructu nihil dixi* (16, 9).

The point of these allusions, I take it, lies in the fact that Quintus Axius, a Roman senator, and intimate friend of Cicero (Gellius, vii, 3, 10), was a money-lender (cf. Ad Atticum, i, 12, and x, 11).

[5] *M. Laeni Strabonis.* Ernesti in the Clavis thinks that this

Brundisium and was the first to keep shut up in a pillared hall birds which could be fed through a net thrown over it, but even the great structures on Lucullus's estate at Tusculum.

9 You must know, I replied, that near the town of Casinum I have a river flowing through my grounds. It is clear and deep, with stone kerbs. Its breadth is fifty-seven feet, so that bridges are necessary to cross from one part of the villa to the other; its length is 950 feet, and it goes in a straight line from an island in the lower reach of the river, where another stream joins it, to the upper reach where the
10 museum[1] (place for study) is situated. Along the

is the man who is mentioned by Cicero in his letter to Terentia (Ad Div. xiv, 4) in 58 B.C., who, despising the threats of Clodius, risked his life and fortune by receiving Cicero into his house at Brundisium. But in the text is found M. Laenius Flaccus.

There is a Strabo mentioned in Ad Atticum, xii, 17, who seems to have been an augur. But cf. Pliny (x, 50): *Aviaria primus instituit inclusis omnium generum avibus M. Laelius* (Laenius?) *Strabo Brundisii equestris ordinis. Ex eo coepimus carcere animalia coercere quibus Natura caelum assignaverat.*

[1] *Ubi est Museum.* Schneider points out the remarkable likeness of this villa of Varro's to Cicero's at Arpinum (cf. De Legibus, ii, capita 1 and 3). There the river Fibrenus is divided into two streams by an island, and this island Cicero describes as his museum. *Nam illo loco libentissime soleo uti sive quid mecum ipse cogito, sive quid aut scribo aut lego.* One wonders if Varro's "museum" were the island itself, and if one should read, *ab insula a Museo*, etc., and regard *Ubi est Museum?* as the query of a commentator who did not understand this! In that case *huius* would refer to the island, and *circum* would have its proper meaning. Local tradition places "lo studio di

banks of the stream is an uncovered walk ten feet[1] broad; off this walk and in the direction of the open ground is the place where the aviary stands shut in on two sides, right and left, by high walls. Between these walls is the site of the aviary, fashioned in the likeness of a boy's writing-tablet with its ring[2] at the top. It measures in the rectangular part forty-eight by seventy-two feet; where it is circular, at the upper end of the enclosure, twenty-seven
11 feet. In addition, figuring, as it were, the lower margin of the writing tablet, there is a "walk," and connected with the aviary a *plumula*[3] (little

Marco Varrone" not far from the right bank of the Rapido facing a little island situated at the junction of the two streams. So I learnt from the village priest (il padre Benedetto del Greco) who showed me over the site of Varro's villa.

[1] *Denos* surely must be *decem*. The numeral x would stand for either.

[2] *Cum capitulo*. Cf. Horace's frequently-quoted line (Sat. i, 6, 74):

Laevo suspensi loculos tabulamque lacerto

on which the Scholiast: *tabulam, buxum in quo meditantur scribere*. The *quaad* which follows, written by Keil as one word, should surely be two, *qua ad capitulum*, etc.

[3] *Plumula*. In this word some of the older commentators saw the *pteron* (πτέρον) of Pliny (xxxvi, 5), or the πτερώματα (wings) of Vitruvius (iii, 2); others thought that the word was corrupt and concealed a number, thus: P lviii, that is fifty-eight feet. Neither view appears promising. Perhaps the word represents some adjective agreeing with *ambulatio*, such as *proxuma* or *plurima* (of considerable extent); or stands for *plurimae* agreeing with *caviae*, the translation then being "a walk adjoining the aviary in the middle of which, at the place

wing), in the middle of which are bird-cages where the entrance to the quadrangle is placed. At the threshold and along the sides right and left colonnades are arranged, the front columns being of stone, and instead of columns between them and the wall there are dwarf trees, while from the top of the wall to the architrave the colonnade is covered by a hempen net which is continued also from the architrave to the stylobate. These colonnades are filled with all kinds of birds which are fed through the net, and water flows to them in a
12 tiny stream. Adjoining the inner side [*i.e.* facing the area] of the stylobate at the upper end of the quadrangular space, two separate narrow oblong ponds stretch from the middle of the quadrangle in the direction of the colonnades. Between these ponds is a path, the only means of access to the *tholus* beyond, which is a rotunda supported by pillars, as

where the entrance to the quadrangle stands, are many bird-cages." I am aware that such conjectures without some further support are not valuable; but the passage seems to need strong medicine, and the copyist has been very careless throughout this description. For example, five lines further down he has *artibusculis* for the obvious *arbusculis*, and (10) *ad stylobate* for *stylobaten*. *In limine*, too, I believe to be an explanation, interpolated in the text, of the previous clause; for, it will be remembered, the aviary is enclosed by walls only on two sides, so that the arrangement described in lines 6-9 could not have been *in limine*.

This second *ambulatio* may have been either the usual "alley" of clipped box, etc., or a covered colonnade. Cf. Cicero, Ad Q. F., iii: *Ita omnia convestit hedera, qua basim villae qua intercolumnia ambulationis.*

is the case with Catulus's[1] hall if you put pillars instead of walls. Beyond these pillars is a wood of great trees planted by hand, which admits light only at the lower part, and the whole is shut in by
13 high walls. Between the outside pillars of the domed building, which are of stone, and the slender inside ones, the same in number, which are of fir, is a space five feet in width. The outside columns are joined together by a net made of gut, which serves as a wall, so that it is possible to look out into the wood and see what is there, without a bird being able to get through. The inner pillars are connected by a fowling-net thrown over them, instead of a wall. Between the inner and outer pillars there has been constructed, as it were, a little bird-theatre, with seats rising tier by tier, since on all the pillars many brackets have been placed as "seats" for the
14 birds. Within the net are birds of all kinds, mostly songsters, such as nightingales and blackbirds, which are served with water by means of a small gutter, while food is thrown to them under the net. Under the stylobate of the pillars is stone-work one foot nine inches high above a platform,[2] which is

[1] *In aede Catuli.* The *porticus Catuli* built *de manubiis Cimbricis* is well known (cf. Cicero, Pro Dom. Sua, 38); but I can find no reference save here to an *aedes Catuli.* The word *aedes*, of course, quite frequently—especially in Plautus and Livy—means "hall" as well as "temple."

[2] *Falere.* This word is not to be met with except in this chapter. It is connected by the different commentators with (1) φάλαρος or φάλερος, white; (2) *Falerii*, a city built on a high

itself two feet above a pond, and five feet wide, so that guests can walk round to their cushions and the small columns.[1] Lowest of all and surrounded by the platform is a pond having a margin a foot wide, and in the middle of the pond is a little island. Round about the quay docks have also
15 been cut out as houses for the ducks. In the island is a small column which has inside it a vertical rod that supports, instead of a table, a wheel with spokes, and at the circumference of the wheel where is generally the curved felloe is a board hollowed

rock; (3) *falerae* or *phalerae* (Keil), the breast ornaments of horses or men.

May it not be for *Phalerum*? The φάληρον, the western harbour of Athens, was almost circular in form. The *navalia* (νεώσοικοι), mentioned later, would then continue the metaphor. I ought, perhaps, to have translated "a circular quay."

[1] *Columellas.* It is difficult to determine what is meant by these. Are they the *columnas tenues* of § 13, or small pillars—not mentioned before—which served as tables for the guests? Keil, however, considers that all previous commentators have erred in thinking that there were any guests at all to be fed, and holds that the ducks were themselves the *convivae*. He reminds us that Varro had already disapproved (4, 3) of Lucullus's practice of having a dining-room in the aviary. But what need had ducks of *culcitae*? Why the elaborate arrangement described for providing drink (*ad bibendum*) as well as food if it was for ducks which swam in a pond? And why have hot water laid on for them? The aviary was built for pleasure (*animi causa*), and to it Varro, no doubt, often took his guests, and when they were there gave them, not indeed a *cena*, but perhaps a cold lunch laid out on the rotating table. The hot and cold water was of course to mix with their wine and to cleanse their hands after eating.

out like a tambourine, two-and-a-half feet wide and four inches deep. It can be turned by a single serving-man, and on it all the things to eat and drink can be set at the same time and moved round
16 to each guest. From the side of the quay where the coverlets[1] are usually found the ducks walk into the pond and swim about in it. The pond is connected with the two fish-ponds I mentioned by a stream, and little fishes swim constantly backwards and forwards, while from the circular board forming the table, which, as I said, is at the ends of the spokes, hot and cold water is made to flow to each guest by
17 the turning of different taps. Inside, under the dome, the morning star[2] by day, the evening star

[1] *Ubi solent esse peripetasmata.* This is said in precisely the same way as the *ubi orbile solet esse* above, and does not mean that *peripetasmata* were actually allowed to hang down. The *falere* evidently served as the *lectus* of the guests, and the *suggestum faleris*, the side facing the pond, corresponded with the space under the seat of the *lectus* "where the *peripetasmata* usually hang." These were the same as the better known *vestes stragulae*- richly embroidered coverlets which were spread over the couches and hung down from them to the floor.

The rotating table was, I imagine, a foot or so above the level of the *falere* not interrupting the view of the pond, so that Varro's guests might sit or recline in comfort while enjoying the bird concert, watching the ducks and fishes in the pond, and eating their luncheon.

[2] *Lucifer interdiu.* Lucifer and Hesperus, as of course Varro knew, were different names for the same star Venus. Cf. Pliny (ii, 8): *Infra solem ambit ingens sidus, appellatum Veneris. . . . Praeveniens quippe et ante matutinum exoriens,*

by night, move round the lower part of the hemisphere in such a way as to indicate the hour. In the middle of the same hemisphere, which has a spindle in the centre, is painted the cycle of the eight winds, like the *horologium*[1] at Athens made by the Cyrrestian, and projecting from the spindle a pointer so moves to the circle as to touch the sign of whatever wind is blowing at the time, so that any one inside can tell.

18 As we were saying this, shouting was heard in the Campus. We who were old hands at electioneering were not surprised, knowing how excited voters

Luciferi nomen accipit, ut sol alter diem maturans: contra ab occasu refulgens nuncupatur Vesper, etc.

I believe, with Schneider, that here are meant certain images which moved round the lower part of the *tholus* where the hours were marked, and that they were actuated by some such *clepsydra* as that described by Vitruvius (ix, 9) under the name of ὡρολόγιον ὑδραυλικόν—a complicated arrangement of wheels and water. *Clepsydrae*, which indicated the hour at night, as well as by day, were common in Rome after 159 B.C.

[1] *Horologium*. This was an octagonal tower made of marble which contained a *clepsydra* that gave the hour of the day or night. Each of the eight sides of the tower corresponded to the direction from which one of the eight winds blew, and had engraved on the frieze a picture of that wind. At the summit of the sloping roof there was the figure of a Triton holding in his hand a rod with which he pointed to the picture of the wind which was blowing at the time. This tower was built by Andronicus of Cyrrhus about the middle of the first century B.C., and is still to be seen at Athens. There is a good engraving of it in Seyffert's (Sandys and Nettleship) "Dictionary of Classical Antiquities," p. 648, and a careful description of it in Vitruvius, i, 6.

get on these occasions, but still we wanted to know what it meant, whereupon Pantuleius Parra[1] came to us with the news that while they were checking the votes at the table some one had been caught throwing voting tablets into a ballot-box,[2] and had been haled before the Consul by the supporters of the rival candidates. Pavo got up, for it was said that the man caught was the person who had been put in charge of his candidate's ballot-box.

CHAPTER VI

OF PEACOCKS

1 AXIUS remarked on this: Now that Fircellius has gone you may speak freely about peacocks, for had

[1] *Parra.* A bird of evil omen. Cf. Horace (Odes, iii, 27, 1):

Impios parrae recinentis omen
Ducat et praegnans canis . . .

and the Eugubine Tables (beginning).

[2] *In loculum.* For the more common *cistam.* It is interesting to find that in this year, 54 B.C., a determined effort was made by Cato to check bribery at elections, and Plutarch (Life of Cato, about the middle) tells us that he greatly embarrassed the candidates, so much so that "they decided to deposit 500 sestertia (cf. Cicero, Ad Att., iv, 15, which fixes the date) each, and then to canvass in a fair and legal manner. If any one were convicted of bribery he was to forfeit his deposit." A few paragraphs further on he writes: "This Favonius stood for the office of Aedile and apparently lost it; but Cato upon examining the votes, and finding several of

you said anything disrespectful[1] of them in his presence he would probably have had a bone[2] to pick with you for the honour of his clan. To him Merula answered: As to peacocks, why I remember the time when people first began to keep flocks of them and sell them at a big price. M. Aufidius Lurco[3] is said to make more than 60,000 sesterces (£480) a year out of these birds.

If profit be your object there should be considerably fewer cocks than hens, if pleasure, it is the other way about, for the cock is the handsomer of the two.

2 They should be fed on the farm in flocks. It is said that beyond the sea they are reared on islands, as, for instance, at Samos in the grove of Juno, and on Planasia,[4] an island which belongs to M. Piso.

them inscribed in the same hand-writing, appealed against the fraud, and the tribunes set aside the election."

It looks very much as though the fraud mentioned by Plutarch were the same as that alluded to in Varro's text.

[1] *Secus* here = *male*, a not uncommon use, especially in Sallust.

[2] *Serram.* There seems to be no reason to suspect the text, as Scaliger and others have done. Quarrelsome altercation is well expressed by the metaphor of the two-handed saw. Tertullian (De Corona, 2) has: *Et quamdiu per hanc lineam serram reciprocabimus?*

[3] *M. Aufidius Lurco.* Cf. Pliny (x, 20): "The first to kill a peacock for the table was the orator Hortensius on the occasion of an inaugural dinner of the Pontifices; to fatten peacocks, M. Aufidius Lurco about the close of the war against the Pirates (67 B.C.). From this source he made an income of 60,000 sesterces."

[4] *Planasia.* Now Pianosa, a small island about twenty

To form a flock birds of good age and shape are bought, for to this creature nature has given the palm for shapeliness and beauty over all other winged things. Pea-hens under two[1] years old are no use for breeding, and they cease to be so when
3 too old. They eat any kind of grain given them, with a preference for barley. Seius gives them a *modius* (peck) of barley each per month, taking care, however, to increase the allowance (for the cock birds) at the breeding season before copulation begins. He expects his keeper to produce three chicks to each pea-hen, and for each chicken when grown he gets 50 denarii[2] (£1 12*s.*), so that
4 no bird is so profitable as the peacock. He also buys eggs and puts them under hens, and the chickens that are hatched he takes from them and puts in the domed building[3] where he keeps his

miles due south of Elba. Cf. Columella (viii, 11, 1): *Itaque hoc genus alitum nemorosis et parvulis insulis, quales obiacent Italiae facillime continetur. Nam quoniam nec sublimiter potest nec per longa spatia volitare, tum etiam quia furis ac noxiorum animalium rapinae metus non est sine custode lato vagatur maioremque pabuli partem sibi acquirit.*

[1] *Bimae* should almost certainly be *trimae*, for, as Schneider points out, Aristotle, Columella, Pliny, Aelian, and the Geoponica all fix three years as the earliest age at which pea-hens begin to lay, and this is confirmed by modern experience.

[2] *Quinquagenis denariis.* Fifty denarii = 100 sesterces = about £1 12*s.*

[3] *Testudinem.* For an interesting and detailed account of the "peacock-house" cf. Columella, viii, 11, 3. In this he states that separate pens must be made, one for each cock-bird and the five hens assigned to him.

peacocks. This building should be made of a size proportionate to the number of peacocks kept in it, and should have separate sleeping places having a smooth coating of plaster to prevent any
5 serpent or other animal from getting in. It should also have a space in front of it, where the chickens may go out to be fed on sunny days. These birds require both places to be clean; and so their keeper must go round with a shovel and remove the droppings, which he will keep carefully, as they are useful for tillage and as litter for the chickens.
6 It is said that these birds first appeared on the table at a dinner-party given by Q. Hortensius to celebrate his election as augur, an extravagance which was at that time commended only by the luxurious, not by men of virtue and prudence. His example was speedily followed by many, and the price paid for them went up in consequence, so that their eggs sell now for 5 denarii[1] (3*s.* 3*d.*) apiece, while the birds themselves fetch without difficulty 50 denarii (£1 12*s.*) a head, and a flock of one hundred easily makes 40,000 sesterces (£320), and Abuccius indeed used to say that by requiring three chickens to each hen, 60,000 sesterces (£480) might be made.

[1] *Denariis quinis.* Macrobius (ii, 9), writing about the beginning of the fifth century A.D., quotes this passage, adding: *Ecce res non admiranda solum sed etiam pudenda ut ova pavonum quinis denariis veneant; quae hodie non dicam vilius sed omnino non veneunt.*

The sum of 60,000 sesterces is made up thus: 100 hens produce 300 chickens, which fetch each 50 denarii or 200 sesterces; 300 × 200 = 60,000.

CHAPTER VII

OF PIGEONS

1 MEANWHILE Appius's servant came from the Consul, and said that the augurs were wanted. Appius went out from the Hall, and at that moment there fluttered into it a flock of pigeons, giving Merula occasion to say to Axius: Now if ever you had set up a pigeon-house, you might have imagined these birds to be yours, wild though they are. For in a pigeon-house there are usually the two kinds, one wild pigeons, or rock-pigeons as some call them, kept in turrets and gable-ends (*columen*) of the farmstead—it is from *columen* they get the name *columbae*—and seeking the highest places on buildings through their inborn timidity. Hence the wild kind mostly haunt turrets, flying up to them from the fields and back
2 again as the fancy takes them. The other kind of pigeon is less shy, for it feeds contentedly at home about the doorstep. This is generally white,[1] while the other, the wild kind, is of different colours, but not white. From the union of these two stocks

[1] *Colore albo.* Cf. Columella (viii, 8, 9): "The white kind, which is commonly seen everywhere, is not much approved of by some people, though the colour is well enough for pigeons which are kept in confinement. For those which fly about freely it is the worst possible, as it is most easily espied by the hawk."

comes a third mongrel kind which is bred for profit. These are put into a place called by some a *peristeron*, by others a *peristerotrophion*, in which often as many as five thousand birds are confined.
3 The *peristeron* is built in the shape of a large *testudo* with a vaulted roof. It has a narrow entrance and windows latticed in the Carthaginian[1] fashion, or wider than these are and furnished with a double trellis, so that the whole place may be well lit and no snake or other noxious animal may be able to get in. Inside every part of the walls and ceilings is coated with the smoothest possible cement made from marble; outside, too, the walls in the neighbourhood of the windows are plastered over to prevent a mouse or a lizard creeping by any way into the pigeon cotes. For nothing
4 is more timid than a pigeon. Many round niches[2] are made in a row, one for each pair of pigeons, and there should be as many rows as possible from ground to ceiling. Each niche should be made so that the pigeon may have an opening just big enough for it to come in and out, and should have an inside diameter of three palms (one foot). Under each row of pigeon-holes a shelf, eight inches

[1] *Punicanis.* The Carthaginians gave their name to many things made of wood, as for example the *plostellum Poenicum* (Varro, i, 52, 1), the *lectus Punicanus* (Isidore, xx, 11), *Punicana coagmenta* (Cato, xviii, 2), etc.

[2] *Columbaria.* The writer of the article "Pigeon" in the "Encyclopaedia Britannica," after criticizing severely modern dove-cotes, in his description of the properly constructed pigeon-house unconsciously plagiarizes from Varro.

broad, should be attached to the wall, which the birds can use as a landing, and walk on to it when
5 they like. There should be water flowing[1] in for their drinking and washing, for pigeons are very clean birds. The pigeon-keeper should, therefore, sweep the place out several times a month, as the dirt made there is an excellent manure, so much so that some authors speak of it as the best of all. If any pigeon has come to any harm the keeper must look after it, if one has died he must remove it, and if any young birds are fit for sale he must bring
6 them out. He must also have a fixed place, which is shut[2] off from the others by a net, to which the hen-birds that are sitting may be transferred, and

[1] *Quae influat.* The reading of the Archetype is *quo influat*, which is supported by the Geoponica (xiv, 6): "A fairly large bathing place should be dug in the pigeon-house for the birds to bathe and drink in, so that the keeper may not have to disturb the birds frequently in order to give them water." Columella, however (viii, 8, 5), says that "the drinking vessels should be similar to those used for hens, should admit only the necks of the birds, and should be too narrow to allow of their bathing, which is bad for the eggs or chickens on which they are sitting."

[2] *Disclusum ab aliis.* Cf. Columella (viii, 8, 4): "On the outside, too, the walls should have a coating of smooth plaster—especially about the window. This must be so situated as to admit the sunlight for the greater part of the winter's day, and it should have appended to it a fairly large house protected by nets in order to keep out the hawks, to admit the pigeons that are going out to sun themselves, and to let the mother birds, sitting on eggs or chickens, out to the fields, lest saddened by the slavery of continuous confinement they fall sick. When they have flown about the build-

it must be possible for the mothers to fly out of it away from the pigeon-cote. For this there are two reasons: (1) because, in case they are losing appetite and are growing feeble in captivity, a flight into the country and the free air brings back their strength; (2) because, they act as a decoy;[1] for they themselves in any case come back to the pigeon-cote because of their young ones, unless they are killed by a crow or caught by a hawk. These latter
7 pigeon-keepers generally kill by means of two limed twigs, which are stuck in the ground and then bent so as to touch each other. An animal of the kind on which hawks prey is then tied between them, and so, smearing themselves with the birdlime they are beguiled. That pigeons do return to a place is shown by the fact that people often let them fly from their laps in the theatre, and they return home, and unless they did so they would never be
8 let loose. Food is given them in small troughs placed round the walls, which are filled from outside by means of pipes. They are fond of millet, wheat, barley, peas, kidney-beans, and vetch. Much the same methods must be adopted—as far as possible—by those who keep wild pigeons in turrets and on the roof of the farmhouse.

ings for a little while they come back cheered and refreshed to their young ones."

[1] *Propter inlicium.* The Geoponica (xiv, 3) state that if you anoint your pigeons with myrrh, or add cummin or old wine to their food, "all the neighbouring pigeons noticing the sweetness of their breath will come to your dove-cote."

For your pigeon-house you must get birds of the right age—not young chicks and not old hens—and
9 as many cocks as hens. Nothing is more prolific than the pigeon. Thus within the space of forty days a hen-bird conceives, lays, hatches, and rears its young. And this is continued all the year round,[1] the only interval being from the winter solstice to the spring equinox. They have two young ones at a time, and when they have grown up and come to their strength these go on breeding at the same time as their mothers. Those who fatten young pigeons to increase their market value keep them apart from the others as soon as they are covered with down. Then they stuff them with chewed[2] white bread; in winter twice a day, in summer
10 three times, morning, noon, and evening; in winter the middle meal being cut off. Those which are beginning to get their wing feathers have their legs broken,[3] and, left in the nest, are given over to their mother's care, for so she feeds them and

[1] *Totum annum.* Cf. Columella (viii, 8, 9): *Nam et octies anno pullos educat si est bona matrix.*

[2] *Manducato.* From a curious passage in Columella (viii, 10, 4) it appears that men were hired to do this chewing, and that they got a good price for the work. *Hanc quidam mandunt et ita obiciunt. Sed istud in maiore numero facere vix expedit, quia nec parvo conducuntur qui mandant et ab iis ipsis aliquantum propter iucunditatem* (he is speaking of a mixture of figs and flour) *consumitur.*

[3] *Inlisis cruribus.* Columella (viii, 8, 12) repeats this, adding: "the broken legs cause them pain for not more than two days or at most three"!

herself all day long. Birds thus reared fatten more quickly than others, and the mother birds become white.[1]

At Rome if a pair are handsome, of good colour, without blemish, and of a good breed, they sell quite commonly for 200 sesterces (£1 12*s.*), while a pair of exceptional merit will fetch 1,000 sesterces (£8).[2] Lately, when a trader wanted to buy them at that price from L. Axius, a Roman eques, the latter refused to part with them for less than 400 denarii
11 (12 guineas). Said Axius: If I could have bought a ready-made pigeon-house just as I bought earthenware pigeon boxes when I wanted them at my house, I should by this time have gone to buy it and have sent it on to my villa. Just as though, said Pica, there were not at this moment plenty of pigeon-houses in Rome as well as in the country! Or do you[3] consider that people who have dove-

[1] *Candidae.* One does not see why abundant food and assiduous care of their young should make the parent birds white! Schneider conjectured *grandiores* instead of the *candidiores* of the ante-Victorian editions.

[2] *Singulis milibus.* Cf. Columella (viii, 8, 9): "As Marcus Varro, a great authority, assures us, for he states that even in those less luxurious times a pair frequently fetched a thousand sesterces."

[3] *Tibe.* The reading found in all the MSS. The forms *tibe* (older *tibei*), *sibe*, are common in inscriptions of Varro's time. Cf. Lex Rubria, 49 B.C., etc. Quintilian (i, 7, 24) says: *Sibe et quase in multorum libris est; sed an hoc voluerint auctores nescio. T. Livium ita his usum ex Pediano comperi qui et ipse eum sequebatur; haec nos i littera finimus.*

cotes on the tiles[1] do not possess pigeon houses, though some of these have a plant worth more than 100,000 sesterces (£800)? Now I should advise you to buy the whole plant belonging to one of them, and before building[2] in the country to learn thoroughly here in Rome how to pocket the big gain of fifty per cent.[3] every day. Now, Merula, will you go on to the next subject?

CHAPTER VIII

OF TURTLE-DOVES

SAID he: For turtle-doves, as for pigeons, you must build a place of a size proportionate to the number of birds you mean to rear, and it, too, as we said when speaking of pigeons, must have an entrance, windows, pure water, and walls and ceilings protected with plaster; but instead of pigeon-holes[1] along the wall, shelves or poles placed in a

[1] *In tegulis.* Cf. Columella (viii, 11, 3): *Fiunt arundinea septa in modum cavearum qualia columbaria tectis superponuntur.*

[2] *Aedificas* does not seem to be Latin; *aedifices* should be read.

[3] *Assem semissem.* Victorius (p. 120) says in regard to this passage: *Antiquorum librorum lectio. In excusis "Ex asse semissem" antea legebatur.* This would mean "the big profit of 50 per cent. a day."

[1] *Pro columbariis.* Because the turtle-dove did not breed in captivity. Cf. Columella (viii, 9, 1): *Turturum educatio super-*

row, on which little mats made of hemp are placed. The lowest row should not be less than three feet from the ground, between the other rows there should be nine inches, and between the top row and the ceiling six inches; the row should be of the breadth the shelf can be made to project from the wall, and upon these shelves the birds feed[1] day and night. For food they are given dry wheat, about half a peck a day for every 120 turtle-doves. Their quarters are swept out daily lest they suffer harm from the dung,[2] which is, moreover, kept for tillage. The best time for fattening them is near the time of harvest,[3] for the mother-birds are then at their best

vacua est, quoniam id genus in ornithone nec parit nec excudit. He goes on to say that they are fattened as soon as caught, and that the best time to do so is in summer, as it is difficult to fatten them in winter, and the price obtained for them is lowered by reason of the abundance of fieldfares at that season.

[1] *Pascuntur.* Columella (viii, 9, 3) closely follows Varro, but enters into greater detail: "The places made for turtle-doves are not boxes or little chambers hollowed out in the walls as is the case for pigeons. Instead shelves (brackets) are fastened to the walls in a straight line, and these are covered with little hempen mats. Nets are thrown over them to prevent the birds from flying, as they lose flesh if they do. On these shelves they are diligently fed with millet or wheat, which must not be other than dry."

[2] *A stercore.* Columella (*loc. cit.*) continues: "The mats must be carefully cleaned lest the dung burn the feet of the birds."

[3] *Circiter messem.* Columella (*loc. cit.*) says: "About harvest time when the young broods have now grown strong."

The practice of fattening turtle-doves in large numbers was

when most chicks are being born, and the latter are more easily fattened at this time. Thus they are especially profitable at this season of the year.

CHAPTER IX

OF POULTRY

1 I MISS, said Axius, two branches of the art of fattening[1] birds, those connected with wood pigeons and hens, I mean, and I shall be glad if you, Merula, will now speak about them—then if anything in the other branches remains proper to be discussed we can discuss[2] it. Well [said Merula] the term

common in the thirteenth century in Italy. Crescentius (late thirteenth century) writes: "The fowlers of Lombardy, especially at Cremona, net wild turtle-doves all through the summer and shut them up in a small well-lighted building. They give them clean water and as much millet seed as they will eat, and keep them until winter or well into the autumn. As many as fifteen hundred of them are kept in one place, and grow ineffably fat!"

[1] *Farturae*. The reading of the Archetype was *sarsurae assurae*. It seems probable that the second word is a careless repetition of the first, and that *sarsurae* is for *farturae*, though the latter corruption is difficult to account for. In the next line Keil brackets *palumbis* wrongly I think, for (1) the plural *membra* implies at least two branches, and (2) after hens have been discussed, a few words are actually given to wood-pigeons *palumbis* (9, 21). Perhaps the original words were *de palumbis et gallinis*.

[2] *Ratiocinari*. Properly a book-keeper's word, meaning to "audit an account," to "reckon." Cf. Cicero (Phil., ii, 22):

poultry includes fowls of three kinds—barn-door,
2 wild, and African. Barn-door[1] fowls are those which are commonly kept at farmhouses in the country. With regard to these, he who means to set up a poultry-farm—with the object, that is, of making large profits by the application of skill and diligence, as the Delians[2] in particular have ever done—must give heed to these five points: (1) buying: the kind and number to be bought; (2) breeding: the conditions to be observed for mating and laying; (3) eggs: the sitting and bringing off; (4) chickens: the method of rearing and the birds

Omnia denique quae postea vidimus. Si recte ratiocinabimur, uni accepta referemus Antonio. The passage in the text might perhaps run: "If there is any useful calculation to be made about the other branches we can then make it"—with a hit at the commercial spirit of Axius.

[1] *Gallinae villaticae.* Cf. Columella (viii, 2, 2): *Cohortalis est avis quae vulgo per omnes fere villas conspicitur. Deinceps* in the next line is unintelligible, and I am inclined to think that it has strayed from the passage three lines higher: *Tum de reliquis. Siquid*, etc., the sense of which would be improved by the insertion of *deinceps* after *reliquis.*

[2] *Deliaci.* Cf. Columella (viii, 2, 4): *Huius igitur villatici generis non spernendus est reditus si adhibeatur educandi scientia quam plerique Graecorum et praecipue celebravere Deliaci.* He goes on to say, however, that the Delians bred principally fighting-cocks (Tanagrian, Rhodian, Chalcidic, and Median), and that he prefers the native Italian breed (of which he gives a detailed description) "as a source of revenue for the hard-working pater familias." He strongly disapproves of cock-fighting, "as often a man's whole patrimony is staked on a match and is carried off by the victorious boxer (*pyctes*)." Cf. Pliny (x, 50): *Gallinas saginare Deliaci coepere.*

by which they are to be reared; and (5) the method of fattening them, which forms an appendix to the other four heads.

3 The term "hen" is applied in a special sense to female barn-door fowls; the males are called cocks, the half-males—those which have been castrated—capons. Cocks are castrated—to make them capons—by burning them with a hot iron at the lower extremities[1] of the legs until the skin bursts, and the sore which rises is smeared over with potter's clay.

4 He who looks to have a poultry-farm complete at every point should of course procure all three kinds, but he must have, above all others, barn-door fowls. In buying these, those should be chosen[2] which are prolific; their short feathers should be mostly

[1] *Ad infima crura.* This is strange; but Columella (viii, 2, 3) has: *Nec tamen ad pedunculos genitalibus, sed ferro candente calcaribus inuritur, quae cum ignea vi consumpta sunt, facta ulcera, dum concalescunt, ligulari creta linuntur*, and Pliny (x, 21): *Desinunt canere castrati: quid duobus, ut modo, lumbis ablatis candente ferro* (so Aristotle, H. A., ix, 50); *aut imis cruribus . . . facilius ita pinguescunt.*

[2] *Eligat.* Columella's description (viii, 2, 7, etc.) of the farm-yard fowl, which closely follows Varro's, is of the native Italian breed (*vernaculum nostrum*); consequently this is the breed described by Varro.

The cock came to Italy probably from Persia (it is mentioned in the Zend Avesta) *via* Asia Minor and Greece, to which it was brought in the sixth or fifth century (neither Homer nor Hesiod mentions it, but Aristophanes frequently does so). Athenaeus (xiv, 20) places the original home of the cock in Persia.

reddish, wing feathers black, toes of unequal length, heads big, crest erect, and bodies of large
5 size, for these are the best layers. The cocks should be chosen for their amorous[1] nature; you may know them by their being fleshy and having a red crest, a short, thick, sharp beak, gray or black eyes, whitish-red wattles, a striped or gold-tinged neck, well feathered thighs, short legs, long nails, long tails and wings with abundant feathers—also by their frequent stretching up and crowing, by their stubbornness in fight, and by the courage with which, so far from fearing animals which harm the
6 hens, they even do battle on the hens' behalf. You must not, however, in choosing a breed, try to get Tanagrian, Median,[2] or Chalcidic cocks, for though

[1] *Gallos salaces qui.* In the Editio Maior Keil brackets this *qui*, suggesting, however, that it may be an adverb meaning "somehow"! There would seem to be three ways of dealing with the passage: (1) to expunge *qui*, "the cocks which are good sires are known by," etc.; (2) to retain *qui* and insert *sint* taking *gallos* as the common (in Varro) Greek accusative, and (3) to read with Schneider: *gallos salaces: qui animadvertuntur si . . .*," supplying before *gallos* the *eligat oportet* of line 2. This seems to me incomparably the best way of the three, and so I have translated.

[2] *Melicos.* Popular for *medicos* (cf. iii, 9, 19); also Festus: *Medicae gallinae quod in Media id genus avium corporis amplissimi fiat, "l" littera pro "d" substitula*, and Columella, viii, 2, 4: *et Medicum quod ab imperito vulgo littera mutata Melicum appellatur.*

Columella (viii, 2, 13) recommends that these foreign breeds be crossed with Italian hens: *nam et paternam speciem gerunt, et salacitatem fecunditatemque vernaculam retinent.*" He has

doubtless handsome, and excellent for cock fights when matched with one another, they are poor sires.

Supposing that you intend to feed two hundred fowls you must give them an enclosed space, and have two hen-houses[1] built in it close together

no good word for bantams (*pumiles aves*) as they are not prolific or profitable, and the cocks are quarrelsome and *plerumque ceteros infestat et non patitur inire feminas, cum ipse pluribus sufficere non queat.*

[1] *Duae caveae.* Columella's lucid account (viii, 3) of the hen-house may be compared with this. There were three contiguous *cellae* of which the middle one was the least, being 7 ft. in every dimension. The other two were 12 ft. by 12 ft. by 7 ft. wide, and were each divided into two storeys, the lower chamber being 7 ft. high, the upper 4 ft. The entrance to the building was in the middle *cella*; of the two lateral *cellae* the entrances right and left adjoined the back wall. In the centre of this back wall was a fire-place, the smoke from which drifted into each of the lateral chambers, "for," says Columella, "smoke is very salutary for hens." Places were cut out in the walls to serve as nests—or stakes were driven firmly in, and supported wicker baskets. In front of the nests were "landings" on which the hens might alight when going to lay or sit, for if they flew directly on to the nests they were apt to smash the eggs. The birds were not to sleep on the floors "as dung does harm to their feet and produces gout"; and their perches were cut square. Water (which must be clean, for, if foul, it gives them the pip) was served to them in wooden or earthenware troughs provided with lids; it was drunk by the birds through holes in the sides which were just big enough to admit their necks. In the yard plenty of dust or ashes was laid down along the walls—in the colonnades or wherever there was a protecting roof—so that the hens might clean their feathers by rolling in it.

which face south; each must be some ten feet in length, half as much in breadth, and a little less than ten feet in height. In each there should be a window three feet wide and a foot more in height. These windows should be made of osiers with wide interstices, so as to afford plenty of light, and yet preventing from getting through them any of those animals which harm fowls.

7 Between the two houses there should be a door for the *gallinarius*, their keeper, that is, to enter. In each hen-house there must be numerous perches reaching across it—enough to hold all the hens in fact—and opposite to each perch separate nests should be made for the hens. In front must be, as I said,[1] an enclosed court where they may stay in the day-time and take dust-baths. There must be, besides, a large[2] room for the keeper to live in, while all round in the walls are the hens' nests,[3] either

[1] *Sicut dixi.* This refers, no doubt, to the *locus saeptus* of § 6.

[2] *Cella grandis.* It would appear from the text that hens' nests were disposed round this *cella grandis* in which the keeper lived. Varro does not state where this was situated, though it was probably between the two hen-houses and corresponds to Columella's *cella minima* (*loc. cit.*). But in the latter there were no nests—only a fireplace; and if the keeper's cell was between the two hen-houses it is strange that it was not referred to above when the door, which would lead into it, was mentioned. Schneider rightly suspects the text.

[3] *Plena cubilia.* The meaning of *plena*—for which the editions before Victorius substituted *posita*—is dark to me. Keil's explanation is singular: "The nests had to be full, lest the sitting hens should suffer from any movement." But how

cut[1] in the walls themselves or firmly attached to them, for movement is harmful when a hen is sit-
8 ting. When they are going to lay you must strew chaff in their nests, and, when they have laid, this must be taken away and fresh put in its place, for otherwise fleas and other vermin breed in it, and prevent the hen from keeping still—the result being that the eggs are hatched spasmodically or else go bad. They say that when you want a hen to sit, she should not be given more than twenty-five eggs,[2] though being a prolific animal she may have
9 laid more, and that the best time for sitting is between the spring and autumn equinoxes. Accord-

could this apply to the first case mentioned, where the nests were cut out in the walls, or to the second, where they were attached to the walls very firmly in order to prevent them from moving?

I can only suggest, if *plena* is to be kept, that it should be taken closely with *gallinarum* (nests full of hens).

[1] *Aut exculpta aut adficta.* Columella (viii, 3, 4) describes both methods: "The walls should be built thick enough to admit of nests being cut in them . . . for this method is both healthier and more sightly than that adopted by some people who drive stakes well into the walls and then place wicker baskets upon them."

[2] *XXV ova.* The Geoponica give twenty-one as the maximum number. Columella (viii, 5, 8) makes it depend on the month: "In January fifteen—never more than this; in March not less than nineteen; in April twenty-one, and twenty-one for every month up to October 1st. After that the number does not matter, as the chickens hatched in cold weather nearly always die." All ancient authorities agree that the number must be odd, and that incubation should begin when the moon is waxing!

ingly the eggs laid before or after this time, as well as the first[1] eggs laid during this time, should not be used for sitting, and such as are used should be given to quite old hens which must not have sharp beaks or claws,[2] rather than to pullets,[3] for the time of the young ones should be taken up in conceiving, not sitting. They lay best when one or two
10 years old. If you mean to put pea-hens' eggs under a hen, then hens' eggs may be added only after she has been sitting on the former nine days, and is beginning the tenth, so that she may bring the chickens off at the same time, for chickens take twice ten days to hatch, peacocks thrice nine.[4] The

[1] *Prima.* The Geoponica (xiv, 7) translate this πρωτότοκα—"the first eggs laid by a hen." Τὰ δὲ πρὸ τούτου τοῦ καιροῦ ἢ μετὰ ταῦτα τικτόμενα καὶ τὰ πρωτότοκα πάντα οὐχ ὑποθετέον."

[2] *Ungues.* Columella (viii, 2, 8) says that it is a sign of breeding in hens if they have five toes, but they must not have cross spurs like cocks, as in that case *contumax ad concubitum . . . raroque fecunda, etiam cum incubat calcis aculeis ova perfringit.*

[3] *Pullitris.* Scaliger defends the word *pullitra*, not found elsewhere, on the analogy of *porcetra*—a young sow that has farrowed but once. The Geoponica (*loc. cit.*) translate *pullitris* ἀκμαζούσαις καὶ τίκτειν δυναμέναις.

[4] *Ter noveni.* Schneider substitutes *ter deni*, inferring the necessity from Varro's own words; but Varro was not the man to sacrifice a neat antithesis and a fine number associated with Pythagorean philosophy and magic spells (cf. the *ter noviens cantare* of i, 2, 27) to mere pedantic accuracy. Even the later born Columella respects the number, not changing but qualifying it (cf. viii, 5, 10): *Diebus ter septenis opus est gallinaceo generi, at pavonino et anserino paullo amplius ter novenis*! Pliny, however, says that the time depends upon the

sitting hens should be confined so that they may go on sitting night and day, with an interval in the early morning and evening for food and drink to
11 be given them. The keeper ought to go round every few days and turn the eggs, so that all parts of them may be kept equally warm. They say you can tell if an egg is good and full or not by putting it into water, for an empty one floats and a full one sinks, but that shaking them in order to find this out is a mistake, as it destroys the germinal veins.[1] The same people tell you that the egg which, when held up to the light, appears transparent, is good
12 for nothing. Those who want to keep eggs for future use rub them well with fine salt or brine for three or four hours. This is then washed off, and the eggs are covered over with bran or chaff. Care is taken that the number of eggs in a sitting is uneven. Four days after a hen begins to sit it becomes possible for the keeper to learn if the eggs being hatched contain an embryo. If he holds one to the

weather (x, 54), "for eggs are hatched more quickly in warm weather. Thus in summer eighteen days only are needed, in winter twenty-five."

[1] *Vitales venas.* Pliny, who gives all three tests (*loc. cit.*), uses this expression (cf. x, 54): *Conculi vero experimento vetant, quoniam non gignant confusis vitalibus venis.* These *venae vitales* formed what Pliny, following Aristotle (vi, 3, H. A.), calls *parva velut sanguinea gutta, quod esse cor avium existimant, primum in omni corpore id gigni opinantes: in ovo certe gutta salit palpitatque* (x, 53).

The Geoponica (xiv, 7) call these *venae vitales* τὸ ζωτικόν, also ἰνῶδες τι καὶ ὕφαιμον.

light and finds it is uniformly clear, it should be thrown away, it is thought, and another put in its place.

13 The chickens[1] that are hatched should be taken from the several nests and put under a hen having few chickens, and the few remaining eggs she may have should be taken from her and put under other hens that have not yet hatched their eggs. They must have less than thirty chickens, for no batch should exceed this number.

For the first fifteen days after hatching you must give the chicks in the morning a mixture of barley-meal[2] and cress seed, to which has been added

[1] *Excusos pullos . . . et minus habent triginta pullos.* The difficulties of this passage lie in the words *ab eaque* and in the last clause, which is sheer nonsense as it stands. Fortunately, however, there is an almost exact translation in the Geoponica (xiv, 7): *τὰ δὲ ἐκκολαπτόμενα νεόττια εὐθέως ὑποσπαστέον ἐξ ἑκάστης ὄρνιθος καὶ ὑποβλητέον τῇ ὀλιγαρκούσῃ. τὰ δὲ παρ' αὐτῇ μὴ κολαφθέντα ὠὰ καταμεριστέον εἰς τὰς ἔτι θαλπούσας ἵνα μετ' ἐκείνων θαλπόμενα ζωογονῆται. τῇ δὲ ὀλιγαρκούσῃ λ' μόνον μὴ πλέον ὑποβλητέον.* Now Schneider considers *ab ea* to mean *ab unaquaque matre*, implied in the words *ex singulis nidis*, and quotes the passage above from the Geoponica to support his view. But obviously *παρ' αὐτῇ* must refer to *τῇ ὀλιγαρκούσῃ*, not to *ἑκάστης ὄρνιθος*, and the sense of the passage must be that which I have given to Varro's words, though it is possible, of course, that the Greek is a mistranslation.

To meet the second difficulty I would propose to place a full-stop after *excuderunt*, and then read *Et* (or *Ut*) *minus habeant triginta pullos* ("And hens must have less than thirty chickens"), which would then be represented by the last sentence of the passage quoted from the Geoponica.

[2] *Polentam.* Pliny (xviii, 7) describes the various ways of making this.

some wine[1] and water rubbed up with it a considerable time before the food is to be used, lest when you do use it it swell up inside their bodies. They must be given no water. Under this mixture should be a layer of fine dust to prevent their beaks from
14 being injured by the hard earth. Where the feathers begin to grow on the rump and from the head and neck you must frequently pick out the lice, which often make them ill. Near the hen-houses a stag's horn[2] should be burnt, so that no serpent may come near, for chickens commonly die from the smell of these animals. The chickens must be brought out into the sunlight and to the dung-hill where they may tumble[3] about, for so they grow[4] better, and

[1] *Vino.* Keil justifies the insertion of this word by the fact that in the parallel passages in Columella (viii, 5, 17) and the Geoponica (xiv, 9) wine is mentioned. In this he follows Pontedera (*curae secundae*). The latter writes *tactam* instead of *factam*, comparing the *aqua tacta* of 10, 5, and expunges *intritam* as a gloss explicative of *tactam*.

[2] *Cornum cervinum.* Columella (viii, 5, 18) says that *galbanum* or a woman's hair may also be used for the same purpose. As to serpents he says: "You must be careful that chickens are not breathed upon by serpents, the smell of which is so poisonous that it kills them every one."

[3] *Volutare.* The reading of the Archetype was *volitare*, which seems inapplicable to chickens. *Volutare* is defended by Scaliger on the analogy of iii, 17, 7, *cum mare turbaret*, but *turbare* is idiomatic, not uncommon in this sense and supported by authorities from Plautus to Cicero; whereas Varro (§ 7 of this chapter) has already written *in pulvere volutari*—so that here, too, *volutari* should be read.

[1] *Alibiliores.* In ii, 11, 3, we have *alibiles* used actively in the sense of "nourishing." Several of these words ending in

15 not only the chickens, but the whole poultry-yard should be taken out both in summer and at all times when the weather is mild and it is sunny; but a net must be stretched overhead to prevent them from flying out of the enclosure or a hawk or any other bird of prey from flying in from outside. Excessive heat or cold must be avoided,[1] as either is bad for them. As soon as they have their wing-feathers they should be trained to follow one or two hens, so that the other hens may be free to breed instead of spend-
16 ing their time in rearing young ones. Sitting should begin just after the time of new moon, for as a rule the majority of sittings which are begun before this time do not turn out well. They take about twenty days to hatch. As I have said too much, perhaps, about these barn-door fowls, I will make up for it by the brevity with which I discuss the remaining topics.

Wild[2] hens are of rare occurrence in the city and

-bilis have two meanings; *e.g.*, *penetrabilis* in Ovid (Met., xii, 166) means "penetrable" (*Quod iuvenis corpus millo penetrabile telo*); in Vergil "penetrating." Cf. Georg., i, 93: *penetrabile frigus*, etc. So in English the word "healthy" has two senses.

[1] *Evitantem.* προακτέον . . . εὐλαβούμενον τὸ καῦμα. Cf. i, 23, 3: *Quaedam etiam serenda non tam propter praesentem fructum quam in annum prospicientem.*

[2] *Gallinae rusticae.* Schneider and Keil think that this is the Italian partridge. Durand de la Malle (Acad. des Inscriptions et Belles Lettres, 1838) considers them to have been fowls which had reverted to the primitive type. *La poule, redevenue sauvage, ne perpétuait pas son espèce dans la captivité en Italie*

are hardly ever seen at Rome save tame and in a cage. They resemble in shape not[1] these barn-door fowls of ours, but the African birds (guinea-fowls).
17 When perfect in appearance and shape they often take a place at public displays with parrots, white blackbirds, and other strange creatures of that kind. They lay eggs and bring off chickens in the woods, rarely in a farmyard. It is said that the island of Gallinaria gets its name from these hens (*gallinae*) —an island in the Tyrrhenian Sea situated close to Italy, and opposite the Ligurian mountains, Intimilium and Album Ingaunum.[2] Others hold that the name comes from our barn-door fowls which were brought there originally by sailors and became
18 wild and multiplied. The African fowls (guinea fowls) are big, speckled, hump-backed, and are called

comme le fait la poule sauvage des forêts de l'Inde. Elle vivait dans les bois comme cette dernière. De plus, la couleur du coq et de la poule sauvages que Varron compare à celle de la pintade, est aussi celle de la poule et du coq sauvages de l'Inde. Or on sait que les animaux et les oiseaux domestiques, abandonnés à la vie sauvage, reprennent, au bout de quelques générations, la couleur de l'espèce primitive.

Naturalists are agreed, I believe, that at least a large number, if not all, of the European species spring from the Indian jungle-fowl.

[1] *Non similes.* Columella (viii, 2, 2) contradicts this *rustica quae non dissimilis villaticae per aucupem decipitur.* Keil would reconcile the two statements by supposing that Varro is speaking only of those seen in Rome at shows.

[2] *Album Ingaunum.* Pomponius Mela (c. 27) has Albigaunum. The town is now called Albenga; Intimilium, Vintimiglia; and Gallinaria, Isola d'Albenga.

"meleagrides"[1] by the Greeks. These birds were the last to be introduced from kitchen to dining-room[2] by the luxurious taste of man. Owing to their scarcity they are extremely costly.

19 Of the three kinds barn-door fowls are most commonly fattened for market. They are confined in a place that is moderately warm, of small dimensions and admitting but little light, as movement and light sets them free[3] from fat. For fattening,

[1] *Meleagridas.* Cf. Pliny (x, 26): *Simili modo pugnant Meleagrides in Boeotia. Africae hoc est gallinarum genus gibberum, variis sparsum plumis; quae novissimae sunt perigrinarum avium in mensas receptae propter ingratum virus. Verum Meleagri tumulus nobiles eas fecit.* Aristotle (H. A., vi, 2, 2) mentions the Meleagris once only, and says that their eggs are spotted: *τῶν δὲ κατεστιγμένα οἷον τὰ τῶν μελεαγρίδων καὶ φασιανῶν.*

Columella (viii, 2, 2) distinguishes between the Meleagris and the African hen: *Africana est quam plerique Numidicam dicunt meleagridi similis, nisi quod rutilam galeam (paleam?) et cristam capite gerit, quae utraque sunt in Meleagride caerulea.* Durand de la Malle remarks on this: *Columelle n'avait pas observé ces oiseaux d'assez près pour s'apercevoir que la première était la femelle et la seconde le mâle d'une seule et même espèce,* and refers to Buffon (Hist. des Oiseaux, iii, p. 234). The guinea fowl, so well known to the Greeks and Romans, seems to have disappeared from Europe in the Middle Ages and to have been re-discovered only when Europeans sailed to India by the West Coast of Africa and the Cape of Good Hope (D. de la Malle).

[2] *Cenantium.* Keil's excellent emendation for the *genanium* of the MSS.

[3] *Vindicta* was the praetor's rod (properly *festuca*) laid on the head of a slave who was being made a free man. Colu-

hens are mostly chosen, and not necessarily those which are improperly called "Melic"—for the ancients, just as they used to say Thelis for Thetis, so they said Melic instead of "Medic." This name was given to those hens which had been imported on account of their great size from Media, and to their progeny; afterwards to all big hens owing to
20 their likeness to them. Their wing-[1] and tail-feathers are pulled out and they are crammed with cakes made of barley, sometimes[2] of barley mixed with darnel flour or with linseed steeped in fresh water. They are fed twice a day, care being taken that the first meal is digested before the second is given. This is

mella (viii, 14, 11) gives the converse of Varro's statement: "Darkness and warmth help greatly the development of fat" —*ad creandas adipes multum conferunt.*

[1] *Ex iis.* Keil brackets these words without reason. The form of speech is peculiarly Varronian "from them, from their wings and tails that is" and can be supported by a dozen instances from these books: cf. iii, 7, 6; iii, 13, 1; i, 12, 3; iii, 6, 4, etc.

[2] *Partim = aliqui*, as in Cicero (Divin., ii, 9): *Caesar a nobilissimis civibus, partim etiam a se omnibus rebus ornatis, trucidatus.* In the Geoponica (xiv, 7) the three kinds of food are distinguished: "They fatten best if they are kept in a warm and dark house, and their wing feathers are pulled out and barley mixed with water is given them as food. Others use a mixture of barley and darnel flour, others of barley and linseed." Columella (viii, 7, 3) recommends cakes (*offae*) made of barley flour that has been moistened and well kneaded, or, if you want the birds to be tender as well as fat, wheaten bread steeped in a good wine diluted with three times its bulk of water.

indicated by certain signs.[1] After food has been given, and their heads have been thoroughly cleansed to ensure the absence of lice, the birds are shut up again. This treatment is continued for twenty-five days, at the end of which they are fully fattened.
21 Some people feed them on wheaten bread steeped in water mixed with a sound and fragrant wine, and manage to have them fat and tender in twenty days. If they lose appetite through excessive feeding, the daily ration must be decreased by the same difference as it increased during the first ten days, that is to say, it must be diminished by the same daily amount in such a way that the amounts given on the twentieth and the first day are equal. In the same way wood-pigeons are fed and fattened.

CHAPTER X

OF GEESE

1 Now, said Axius, pass on to the kind which is not satisfied with the farm-house and dry land[2] only, but needs ponds as well. This kind you Graecophiles call amphibious (ἀμφίβιον) while to the

[1] *Signis.* Columella (viii, 7, 3): "Nor must you give them a second meal until you are sure by feeling the crop that nothing of the first remains."

[2] *Terra.* Cf. iii, 3, 3: *In altera specie sunt quae non sunt contentae terra solum sed etiam aquam requirunt, ut sunt anseres, querquedulae, anates.*

place where geese are fed you give the Greek name *chenoboscion*[1] (χηνοβοσκεῖον). Of these geese Scipio Metellus[2] and M. Seius have some large flocks.[3]

Said Merula: Seius in making his flocks of geese was careful to attend to the following five points, which I mentioned when I spoke of hens[4]: (1) the choice of a stock, (2) breeding, (3) the eggs, (4) the
2 chickens, (5) fattening for market. In the first place he ordered the slave to see when choosing the stock, that they were big and white, as in most cases the goslings resemble their parents. For there is a second kind with variegated plumage—they are called wild geese—which do not willingly associate
3 with the first, and do not become so tame. For geese the best time for mating begins with the winter solstice, for laying and sitting it extends

[1] *Chenoboscion.* Described in detail by Columella (viii, 14). It was a courtyard enclosed by a nine feet wall and had porticoes all round it. Under these were the *pens*, built of cement or brick, each three feet in every dimension and having a stout door. If there was no river or pond near, a tank was made for them to dive in.

[2] *Scipio Metellus.* Quintus Caecilius Metellus Pius Scipio, father-in-law of Pompey, and his colleague in the Consulship for part of the year 52 B.C. He committed suicide at the close of the civil war.

[3] *Greges magnos.* Pliny (x, 22) mentions Metellus and Seius together in connection with *foie gras*, and says that it was doubtful which of the two first discovered its goodness. *Nec sine causa in quaestione est quis primus tantum bonum invenerit, Scipio Metellus, vir Consularis, an M. Seius eadem aetate eques Romanus.*

[4] *Gallinis.* Cf. iii, 9, 2.

from 1st February or 1st March to the summer solstice. Coupling generally takes place in the water, for which purpose they are driven[1] into a river or a pond. A goose does not lay more than three times in the year. They must each have a pen made in which to lay their eggs, two and a half feet square, which must be strewn with straw. You must put some mark on their eggs, as they do not hatch those of other geese. As a rule nine or eleven are put under the hen-bird to be hatched, if less, five, if more, fifteen. Hatching takes thirty days; when the weather[2] is comparatively mild, twenty-five.

[1] *Iniguntur.* Scaliger's emendation for the *inunguentur* of the Archetype. Schneider supports the reading *merguntur* from "the nature of things," and from Aristotle (H. A., vi, 2): οἱ χῆνες ὀχευθέντες κατακολυμβῶσι.

Columella (viii, 14, 4): *Ineunt autem non . . . insistentes humi: nam fere in flumine aut piscinis id faciunt.*

[2] *Tempestatibus.* This word seems to have strayed from its place. I would read: *Incubat dies triginta, tempestatibus tepidioribus xxv,*" for it is much to be doubted if *tempestatibus* can, unqualified, mean "in bad weather," or even "in stormy weather," and, supposing the word to have that meaning here, then it is unsuited to *tepidioribus.* The Geoponica (xiv, 22) say: "Hatching takes generally twenty-nine days, in cold weather thirty." Columella (viii, 14, 7) has: *triginta diebus opus est cum sunt frigora, nam tepidis xxv satis est,*" cf. Pliny (x, 59): *Incubant tantum tricenis diebus, si vero tepidiores sint xxv,* which supports the proposed change.

In the chapter quoted above Pliny gives many interesting facts about geese, *e.g.*, "the first thing contracted for by the censors is the food of the sacred geese. Geese walk all the way from Brittany to Rome. White ones provide a second source of income in the shape of down, the best of which

4 When a goose has brought off her chicks, they are left with the mother for the first five days. Afterwards every day when it is fine they are taken to the meadows and also to ponds or marshes, and pens are made for them above or under the ground, where not more than twenty chickens at a time are put; care being taken that the floors of these chambers are not damp, that they are provided with a soft bed of straw or something else, and that weasels cannot get at the chickens or any other animals harm them.

5 Geese are fed in damp places, and for their food a crop is sown [1] on which the farmer may make some profit [apart from these birds] while [especially] for them is sown the herb called *seris* (endive), for even when dried up, if it is moistened with water it grows green again. The leaves are plucked off and given to the geese, as there is danger, if you drive them to where it is growing, that they will ruin it by trampling it under foot, or themselves die of a surfeit—for they are gluttons by nature. And so you must restrain them, for often when feeding if they have got hold of a root they want to pull out of

comes from Germany where the geese are smallish and are called *ganzae*. This down is worth five *denarii* (3*s.* 3*d.*) a pound. And so luxurious have we become that not even men can do without it under their necks," etc.

[1] *Serunt.* Varro is here even more elliptical than himself; but the meaning of the passage is fixed by Columella (viii, 14, 2): "A marshy but at the same time grassy piece of land should be assigned them, and various crops should be sown such as vetch, trefoil, and fenugreek, but especially a variety of endive called by the Greeks σέρις.

the ground, they break their necks.[1] For this part of them is very weak, as the head is soft. If you have not this kind of grass, give them barley or some other grain. When there is green fodder you should give it in the manner prescribed for *seris*.
6 If they are sitting let them have barley steeped in water. The goslings just hatched are served for two days with barley meal or barley, for the next three with cress chopped up fine and mixed with water and then put into some kind of vessel. And when they have been shut up in their pens or under-ground chambers—twenty together, as I said—they are given barley meal or green fodder or some tender grass
7 chopped up. For fattening, goslings are chosen about six months[2] old. They are shut up in the fattening house, where their food is barley meal and fine flour[3] steeped in water, of which they have

[1] *Abrumpunt collum.* This statement is repeated by Columella (viii, 14, 8) and by Pliny (x, 59) and the conclusion is not unnatural, for a goose when struggling with a tough root certainly looks as though it *would* break its neck!

[2] *Sesquimensem.* As the reading of the Archetype was *circiter sex qui mense qui sunt nata*, and as no one would think of fattening goslings of 1½ months old, Keil's emendation, *circiter sex menses qui sunt nati*, seems fairly certain, despite the fact that Columella (viii, 14, 10) gives four months as the best age at which to begin fattening.

[3] *Pollinem.* Cato (157, 9) has *pollinem polentae.* Pollen was the fine dust produced as the grain was ground. Cf. Columella (viii, 14, 11): "These birds are easy to fatten, for they need nothing but barley meal and fine flour three times a day provided always that they have plenty to drink and are not allowed to stray," and the Geoponica (xiv, 22):

as much as they can eat, three times a day. Immediately after a meal they are allowed to drink copiously. Thus treated, they become fat in about two months. After every meal the place should be cleansed, for they like a clean place, though they themselves never leave a place clean where they have been.

CHAPTER XI

OF DUCKS

1 THOSE who intend to keep flocks of ducks and to set up a *nessotrophion* (duck-nursery)[1] should in

"They eat three times a day and at midnight, and are great drinkers."

[1] *Nessotrophion* (νησσοτροφεῖον). This is described in detail and with delightful clearness by Columella (viii, 15): a level piece of ground was chosen and enclosed by a wall fifteen feet high. The roof was of lattice work or nets with wide meshes. The wall was coated with smooth plaster to prevent pole-cat or ferret from getting in, and in the middle of the duck-house a pond was dug two feet deep, the margin of which was made of cement (*signino*, "a plaster composed of powdered tiles mixed with mortar) and descended in a gentle slope to the water. The pond had a stone bottom covering two-thirds of its area, to prevent weeds rising to the surface; the centre was uncovered and planted with the Egyptian bean and other green water plants. For twenty feet all round the pond the banks were clothed with grass, and beyond this piece of ground was the wall in which were the nesting-places, each a foot square. These were covered by bushes of box or myrtle, planted between them, which bushes did not overtop the

the first place choose a marshy place, if that be possible, as ducks prefer such a one to any other. Failing that, the best place is where there is a natural pool or pond, or an artificial tank, to which
2 they can go down by steps. The enclosure where they live should have a wall as much as fifteen feet high, like that you saw at Seius's country-house, and it should have but one entrance. All round the wall on the inside is a wide ledge, on which close to the wall should be covered nesting-places, and in front of them the outer landing of the ducks—a level floor of cement made of broken pottery. In it there is a gutter running the whole length, where food is set for them, and into which water runs. For so
3 they take their food. All the walls should be smoothly plastered to prevent pole-cats or other animals entering to harm the birds, and the whole enclosure is covered over by a net with wide meshes, to prevent a hawk from flying in, or a duck from flying out. The food given them is wheat, barley, or grape-refuse —sometimes also river cray-fish[1] and certain other

wall. A gutter was let into the ground and down it ran the birds' food mixed with water.

[1] *Cammari.* The precise meaning of this word is not known, but it seems to have meant a sort of crab. That it was red when cooked and was a cheap and little esteemed food appears from Martial (ii, 43, 11):

Immodici tibi flava tegunt chrysendeta mulli
Concolor in nostra, cammare lana rubes.

Columella (viii, 15, 6), *à propos* of the feeding of ducks, says: *Ubi copia est, etiam glans ac vinacea praebentur. Aquatilis*

aquatic animals of the same kind. Abundance of water must flow into the ponds in the enclosure so
4 that it may be always fresh. There are also other species not unlike ducks, such as teal and moor-hens and partridges,[1] which, as Archelaus writes, conceive on hearing the voice of the male bird. These, though they are not fattened as are ducks and geese because of their fertility or good flavour, do yet become fat if fed in the same way. This is what I have to say about what in my opinion belongs to the first act of farm-yard feeding.

autem tibi si sit facultas, datur cammarus et rivalis alecula, vel si qua sunt incrementi parvi fluviorum animalia. Plutarch (Quaest. Nat., towards the end) says that river crabs are good for sows suffering from headache! *αἱ δὲ ὕες ἐπὶ τοῖς ποταμίοις καρκίνοις φέρονται, βοηθοῦνται γὰρ ἐσθίουσαι πρὸς κεφαλαλγίαν.*

The Geoponica (xiv, 23) mention as food for ducks: "Wheat, millet, barley, grape refuse, and occasionally locusts or prawns or any other similar animals, found in lakes or rivers, which they are accustomed to eat."

[1] *Perdices.* In Martial's delightful description of a Roman farm (iii, 58) occur nearly all the birds mentioned by Varro:

Vagatur omnis turba sordidae chortis
Argutus anser *gemmeique* pavones
Nomenque debet quae rubentibus pinnis (the flamingo)
Et picta perdix Numidicaeque *guttatae*
Et impiorum phasiana Colchorum
Rhodias *superbi feminas premunt galli*
Sonantque turres plausibus columbarum
Gemit hinc palumbus, *inde cereus* turtur, etc.

The *perdix* in the text is probably the red-legged partridge—the *picta perdix* of Martial.

CHAPTER XII

OF WARRENS

1 MEANWHILE Appius returned, and after mutual inquiries as to what had been done and said, he spoke on as follows: We now come to the second[1] act, to what is generally an appendage of the farm-house, and is still called by its ancient name of hare-warren (*leporarium*), from a part only of the uses to which the thing is put. For, in fact, not only hares are enclosed in it, in a wood, as was in former times the case with the mere paddock an acre or two in size —but there are many acres, and stags or roes, as well as hares. It is said that Quintus Fulvius Lippinus[2] has forty *iugera* (twenty-six acres) enclosed in the country about Tarquinii, in which are confined not only the animals I have mentioned, but wild sheep as well! The same man has a park even bigger than this near Statona, and such parks are to be
2 found in other districts. In Transalpine Gaul, more-

[1] *Actus secundi.* Cf. iii, 3, 1: *Eius disciplinae genera sunt tria, ornithones, leporaria, piscinae.*

[2] *Q. F. Lippinus.* Cf. Pliny (viii, 52): "The first of the Romans to make preserves for these and other creatures of the woods was Fulvius Lippinus, who had a park for them near Tarquinii. He was soon imitated by L. Lucullus and Q. Hortensius." And again (ix, 56): "Fulvius Lippinus made an enclosure for snails near Tarquinii a little before the civil war between Pompey and Caesar."

over, T. Pompeius[1] has a great preserve for game, which contains within its bounds a space of about 4,000 paces square (about 9,000 acres). In the same enclosure it is usual to have places set apart for snails and beehives, and also casks to hold dormice. However, the keeping, breeding, and feeding of all these animals, bees excepted, present no difficulty,
3 for everyone must know that, in the case of a hare-warren, the boundary walls should have a coating of plaster and should be high—the first to prevent weasel, marten, or other animal from getting in, the second to make it impossible for a wolf to jump over—and that there should be places of concealment where hares may lie hid during the day in the brush-wood and grass, and trees with spreading branches
4 to foil the efforts of the eagle. Everyone knows, too, that if you put in but a few hares of both sexes, the warren will swarm with them in a short time, so prolific is this quadruped. Why, if you put in no more than four, the place will shortly be full of them. For indeed, often when a litter has not long been born, they are found to have others[2] inside

[1] *T. Pompeius.* Valerius Maximus (vii, 8, 4) mentions a Pompeius Beginus, *vir transalpinae regionis.* Was he a large farmer, one wonders, who gave his name to the fig, pear, grape, and cabbage called Pompeian? Cf. Pliny, xv, 15, 18; xix, 8.

[2] *In ventre.* *Varron rappelle la fécondité du lièvre qui, si cet animal est mis à l'abri de ses ennemis dans un parc, est vraiment étonnante. Il connaissait ce fait curieux de l'organisation de cet animal dont la femelle reçoit le mâle et conçoit même quand elle est déjà pleine: Aussi a-t-elle, dit Buffon* (vol. vii, 105), *en*

them. Thus Archelaus writes, that any one wishing to know the age of a hare should look at the orifices[1] provided by Nature, as some have certainly more
5 than others. There is also the recent fashion, now general, of fattening them—by taking them from the warren, shutting them up in cages, and fattening[2] them in confinement.

Now of these creatures there are roughly three[3] varieties: the first, our Italian hare, which has short front legs and long hind ones, the upper part of the body dark, the stomach white, and the ears long. This hare is said to conceive even when pregnant.

quelque sorte deux matrices distinctes, séparées, et qui peuvent agir indépendamment l'une de l'autre; en sorte que les femelles dans cette espèce peuvent concevoir et accoucher en différents temps par chacune de ces matrices (Durand de la Malle, *loc. cit.*, 515).

[1] *Foramina naturae.* This is explained by Pliny (viii, 55): *Archelaus auctor est quot sint corporis cavernae ad excrementa lepori, totidem esse annos aetatis. Varius certe numerus reperitur. Idem utramque vim singulis inesse, ac sine mare aeque gignere.*

[2] *Saginarent.* Macrobius (iii, 9, end), who quotes Varro, gives this and the fattening of snails as instances to prove that his own age was much less luxurious than Varro's, for in Macrobius's time (A.D. 400) both these practices were unknown.

Instead of the reading of the Archetype *saginarent pleraque*, Macrobius found *saginarentur*, and instead of *hos, hoc.* Keil suggests *plerique*, which I have translated.

[3] *Tria genera.* Xenophon (Cynegeticus, c. 5) distinguishes two varieties: (1) the big kind the colour of a half ripe olive, having a good deal of white on the forehead, (2) the smaller kind reddish yellow, with very little white about it.

In Transalpine Gaul and Macedonia they are very
6 large, in Spain and Italy of but moderate size. There is a second variety which is found in Gaul near the Alps[1] which differs from the former only in being white all over. These do not often reach Rome. A third variety is found in Spain, which resembles in some measure our Italian hare, but it stands low. This is called a cuniculus[2] (coney, rabbit). L. Aelius thought that the hare (*lepus*) derived its name from its swiftness, as it was light-footed (*levipes*). I, however, believe that it comes from the ancient Greek word, for the Aeolians[3] used to call a hare λέπορις. Rabbits (*cuniculi*) are so called because they make burrows (*cuniculi*) underground in the fields, to hide
7 themselves in. One should have, if it is possible,

[1] *Ad Alpis.* Cf. Pliny (viii, 55). "There are several varieties of hares. On the Alps they are white and are thought to feed on the snow in the winter months—they certainly turn reddish yellow as the snow melts."

[2] *Cuniculus.* Pliny (*loc. cit.*) speaks of their enormous fecundity. They over-ran Majorca and Minorca to such an extent that the inhabitants asked Augustus for military aid against them. It is interesting to find from the same chapter that rabbits were hunted with the help of tame ferrets (*viverrae*) just as now.

[3] *Aeolis.* Cf. iii, 1, 6: *Et in Graecia Aeolis Boeoti* (note). For λέποριν compare Gellius's (i, 18) quotation from Varro's Rerum Divinarum: *Non enim leporem dicimus ut ait Aelius quod est levipes sed quod est vocabulum anticum graecum.* And Varro (L. L., v, 20, beginning): *Lepus quod Siculis* (*Siculi?*) *quidam Graeci dicunt* λέποριν, *a Roma quod orti Siculi hinc illuc tulere et hic reliquerunt id nomen. Volpes ut Aelius dicebat quod volat pedibus.*

all these kinds in a warren. You, at any rate, Varro, have I think two, for you were so many years in Spain[1] that I believe the rabbits there followed you here.

CHAPTER XIII

OF WILD BOARS AND OTHER QUADRUPEDS

1 As for wild boars, you know, Axius, that they can be kept in the warren, and that without much trouble both those that have been caught and the tame ones which have been born there are commonly fattened for market; for you yourself have seen on the estate near Tusculum, which Varro here bought from M. Papius Piso,[2] wild boars and roes meeting to feed at a fixed hour when a horn[3] was blown, while from an eminence (from the palaestra?[4]) acorns were poured out for the wild-boars, and vetches or some-

[1] *In Hispania.* This cannot allude to Varro's short and inglorious campaign against Caesar in Spain, for that happened in 49 B.C., and, as has been shown, these conversations are represented as having taken place in 54 B.C.

[2] *Piso.* Cf. note on iii, 3, 8.

[3] *Ad bucinam.* Cf. ii, 4, 20: *Subulcus debet consuefacere omnia ut faciant ad bucinam. Primo cum incluserunt, cum bucinatum est, aperiunt ut exire possint in eum locum ubi hordeum fusum in longitudine. . . . Ideo ad bucinam convenire dicuntur, ut silvestri loco dispersi ne dispereant.*

[4] *E palaestra.* The meaning of this is obscure, and many unhappy emendations have been proposed. Perhaps *in palaestra* was originally written, for Varro may have seen some

2 thing else for the roes. Yes, said Axius, and when I was at Q. Hortensius's near Laurentum I saw the same thing done more in the Thracian[1] fashion, for there was a wood there of more than fifty *iugera* (thirty-three acres) according to Hortensius, surrounded by a wall, and this enclosure he did not call a hare warren, but a *theriotrophion* (place for feeding animals). There, on an eminence on which a dining-table and couches were set we dined, and
3 our host summoned Orpheus[2] to appear. He came,

fanciful resemblance between a wrestling school and the place where the boars jostled one another as they made for their food. *A palaestrita* would make excellent sense "by their trainer," and might be supported by Martial (iii, 82): *Partitur apri glandulas palaestrita.* A *palaestrita* is mentioned also in Martial's account of a Roman farmhouse (iii, 58). The "trainer" would be the *subulcus* of ii, 4, 20, who had to "train them to do everything in obedience to the sound of the horn."

[1] θρᾳκικῶς. Keil's certain emendation for the *magis tragicos* of the Archetype. The attendant took the part of the Thracian Orpheus whose music had power to tame wild animals. Cf. Horace (A. P., 391):

Silvestres homines sacer interpresque Deorum
Caedibus et victu foedo deterruit Orpheus:
Dictus ob hoc lenire tigres rabidosque leones.

[2] *Orpheus . . . cum stola.* In Rome the *stola* was of course the dress of respectable Roman matrons. The Greek word στολή, however, applies to almost any garment, even to the lion's skin worn by Hercules (cf. Eurip. H. F. 465) ἐν στολῇ, θηρός—but generally means a robe. The glorious statue of the Apollo (Orpheus's father) Citharoedus in the Vatican shows him wearing the long Ionian *stola*, and with a *cithara* in his hand.

clad in a *stola*, and on the order to sing to his cithara blew a blast on the horn, whereat a host of stags, wild boars, and other quadrupeds poured round us, making as fine a show, I thought, as when the Aediles give us a hunt without African[1] beasts in the Circus Maximus.

CHAPTER XIV

OF SNAILS

1 SAID Axius, Your part, my friend Merula, has been made lighter by Appius. The second act, which concerned hunting, has been quickly gone through, and as for what remains—snails and dormice—I am not anxious to hear about them, as the subject can present no great difficulty. More than you think, Axius my dear fellow, said Appius, for you have to find a suitable place for your snail-beds, and it must be open to the sky and entirely surrounded by water, lest when you put snails in it to breed, you find not only the children gone, but the mothers as well. You must, I repeat, keep them confined by means of water, or else you will have to get a "slave-catcher."[2]

2 The best spot is one visited by dew and not baked

[1] *Africanis bestiis*, i.e., panthers. Cf. Pliny, viii, 17.

[2] *Fugitivarius*. A mild but thoroughly characteristic joke of Varro's. The *fugitivarius* was the man hired to track and bring back a runaway (*fugitivus*) slave.

by the sun. If there is none such provided by nature —which is usually the case in a sunny place—and you do not chance to have a shady spot in which to make your snail-bed, at the foot of mountain rocks, for instance, the base of which is bathed by a lake or streams, you will have to make a dewy place artificially. This is done by getting a hose-pipe with small teats attached to it which squirt water on to some stone near by, so that the water is splashed in all directions.

3 Snails need little food and no one to give it to them; they discover it, as they crawl about, on the floor of the enclosure, and even find it unless they are stopped by a stream, by climbing the upright walls.[1] And, indeed, while they are on the huckster's stall they manage to keep alive for a long time by chewing[2] the cud, with the help of a few bay leaves thrown amongst them and a sprinkling of bran.

[1] *Parietes stantes invenit.* Keil paraphrases *sed etiam stantes parietes cibi inveniendi causa ascendunt*, which is no doubt the meaning. But how get this from the Latin? *Per parietes* is plausible.

[2] *Ruminantes.* The Archetype has *ex gruminantes ad propalam.* Gesner reads *ex se ruminantes ad propolam.* Keil disliking *ex se* writes simply *ruminantes*, not noticing, however, that this reading has the support of one MS. If the text be right, *ad* must here have the sense of *apud. Propola* = προπώλης. It is curious that in all the cases quoted by Nonius of the use of *ruminor* by Varro, the metaphorical sense "to ponder over," "to remember," is alone found, *e.g.*, *Ruminari dictum in memoriam revocare.* Varro, Tanaquil: *Non modo absens de te quidquam segnius cogitabit sed etiam* ruminabitur *humanitatem.*

And so the cook as a rule does not know whether they are alive or dead when he is cooking them.

4 There are several varieties of snails: the small white ones brought from near Reate, the big ones from Illyricum, and those of middle size which come from Africa. Not but what they differ in these places both in distribution and size; for instance, very big snails come from Africa, called *Solitannae*, which are so big that eighty *quadrantes*[1] (three gallons) can be put into their shells. And similarly in other countries snails though of the same kind differ in
5 size from one another. When breeding they lay an incalculable number of young which are very small and have a soft shell that hardens as time goes on. When large islands are made in the enclosures, they (the snails) bring you a big haul of pence. They are, I may add, fattened usually in the following way. A jar for them to feed in having holes in it is lined with a mixture of *sapa* and spelt. It must have these holes that air may get in. The snail is certainly[2] very tenacious of life.

[1] *LXXX quadrantes.* Cf. Pliny, ix, 56: *Solitannae quibus nobilitas. Quin et saginam earum commentus est sapa et farre aliisque generibus ut cochleae quoque altiles ganeam implerent: cuius artis gloria in eam magnitudinem perductae sint ut octoginta quadrantis caperent singularum calices. Auctor est M. Varro.*

[2] *Enim* seems hardly the particle required here. One would have expected *tamen*, as Varro's words imply a doubt as to whether the snails would die even if there were no holes. In Livy, xxiii, 45 (end) *enim* has almost this sense: *Romam vos expugnaturos si quis duceret, fortes lingua iactabatis; enim nunc minor res est*, etc.

CHAPTER XV

OF DORMICE

1 THE place where dormice are kept is of a different kind, as it is an enclosure bounded not by water, but by a wall the whole of which is faced on the inside with smooth stone or plaster, to prevent the dormouse from crawling out. In it should be small acorn-bearing[1] trees. When these are not bearing, acorns and chestnuts should be thrown inside the
2 wall for the dormice to eat their fill. Fairly wide holes are to be made for them in which they can bring forth their young. There should not be much water, as they take but little of it, and like a dry place. They are fattened in jars, which many people keep inside the villa. These jars made by the potter differ greatly in their construction from others, as grooves (paths) are made in their sides, and a hollow in which to place food. Into this jar are put acorns, walnuts, or chestnuts. A lid is put on the jars, and in the darkness the dormice grow fat.[2]

[1] *Quae ferant glandem.* Pliny (xvi, 6) mentions beech nuts (*fagi glans*) in this connection: *Fagi glans muribus gratissima est . . . glires quoque saginat, expedit et turdis,* so that the word is probably not used here by Varro in the special sense as given by Pliny (*loc. cit.*): *glandem, quae proprie intellegitur, ferunt robur, quercus, esculus, cerrus, ilex suber.*

[2] *Saginantur.* Cf. Pliny (viii, 57): *Semiferum et ipsum animal, cui vivaria in doliis idem qui apris* (Fulvius Lippinus) *instituit. Qua in re notatum non congregari nisi populares*

CHAPTER XVI

OF BEES AND APIARIES

1 And so, said Appius, in the matter of farmyard feeding we come to the third act, which is about fishponds. Third act be hanged! said Axius, do you suppose, because you were so very economical when a young man as not to drink wine and honey at home, that we are going to neglect honey? Axius 2 speaks the truth, said he, turning to us, for I was left with scanty means, and two brothers and two sisters[1] to keep. One of the latter[2] I married without a portion to Lucullus, and it was only when he

eiusdem silvae: et si misceantur alienigenae, amne vel monte discreti, interire dimicando. Genitoris suos fessos senecta alunt insigni pietate. . . . In Moesia silva Italiae—non nisi in parte—reperiuntur hi glires. Albertus Magnus (quoted by Schneider) gives an excellent description of the dormouse, and states that in his time (*circa* 1250) they were fattened in large numbers by the rustics of Bohemia and Carinthia.

[1] *Duabus sororibus.* Schneider points out that Appius had three sisters. Probably one of these was married in the lifetime of her father. The sister married to Lucullus was said by Cicero to have been treated with as little respect as was the Bona Dea by her brother P. Clodius whom Cicero (Pro Dom. 34) calls on that account Jove: *Sed vide ne tu te debeas Jovem dicere quod tu iure eandem sororem et uxorem appellare possis.*

[2] *Quarum.* In view of the anacoluthon Scaliger conjectured *earum*, Gessner *duarum*. Neither is necessary, for, as it has been shown, Varro frequently has such anacolutha.

first gave up an inheritance[1] in my favour that I myself began to drink *mulsum* at my house, though it was given almost every day on the occasion
3 of a banquet[2] to all. Besides it has been more my[3] business than yours to know the habits of these winged creatures, to whom Nature has given the greatest talent and skill. And so as a proof that I have a better knowledge of them than you, let me tell you about their amazing and untaught ability. Merula must then relate to us, as before, the usual practice[4] adopted by *melitturgoe* (as those who keep apiaries are called).

[1] *Hereditate me cessa* for *concessa.* Keil seems to think that Appius was Lucullus's heir, *cum hereditatem Luculli accepisset.* Is not the meaning rather that Lucullus waived a prior claim to an inheritance? Cf. Cicero (Pro Flacc., 36): *Communem hereditatem quae aequaliter ad utrumque venisset,* concessit *adulescenti. Me* is for *mihi.* Cf. Festus, "*me*" *pro* "*mihi*" *dicebant antiqui,* who quotes from Lucilius, *quae me impendet. Vae te* is found in Plautus. Lindsay, however (Lat. Lang. p. 422), thinks these are old uses of the accusative. Quintilian (i, 5) seems to say that *mehe* was an ancient form of *mihi,* but the reading is doubtful. The evidence for the use of *me* for *mihi* is certainly slender.

[2] *In convivio . . . daretur.* The reading of the Archetype was *darem.* If this be kept the meaning is that Appius did not drink *mulsum* himself, though he gave it all the same to all his guests when there was a dinner party, and that there was one nearly every day at his house. And this reading seems to present fewer difficulties than Keil's emendation.

[3] *Meum,* an allusion to the name "Appius" connected by Varro with *apis.*

[4] *Historicos,* ἱστορικῶς. In ii, 1, 2, *historicon* has precisely the meaning of the English word "historical," for Varro

4 In the first place bees are born, some from bees, some from the rotten carcase of an ox.[1] Thus, Archelaus[2] in an epigram calls them βοὸς φθιμένης πεπλανημένα τέκνα, "the roaming children of a dead cow," and he also writes: ἵππων μὲν σφῆκες γενεά, μόσχων δὲ μέλισσαι, "Wasps spring from horses and from calves come bees."

Bees are not solitary creatures like eagles, but gregarious as are men. And though jack-daws also resemble men in this, yet it is not the same thing, for bees combine to work and build, which is not the case with jack-daws; bees have method and

then proceeds to give a sketch of the history of his subject. Here *historicos* = "in descriptive detail" or something of the kind.

[1] *Ex bubulo corpore.* The Geoponica (xv, 2) make Democritus and Varro their authorities for the following method by which bees may be produced from a bull. "Build a house fifteen feet in every dimension, having one door and four windows —one in each side. Into this house put a bull of thirty months, fleshy and very fat, which is beaten to death with clubs by a gang of young men who must bruise the flesh and break the bones without drawing blood. They must then turn the bull on to its back, cover it with thyme, and leave the house. The door and windows are then to be blocked up with thick mud so that no air can get in. In the third week after this, light and fresh air are to be admitted by throwing open the door and all the windows. Then when the dead matter begins to be alive the windows and door must be blocked as before. On the eleventh day after open again and you will find the house filled with bees hanging together in bunches, and of the bull nothing left but the horns, bones and hair." Cf. Vergil, Georg., iv, 550-8.

[2] *Archelaus.* Cf. note on ii, 3, 5.

science, and from them we learn to work, to build,
5 and to store up food, for those three things are their concern: namely, food, house, and work; nor is the wax the same thing as the food, the honey, or the house. Each cell in the honey-comb has, as you know, six angles, as many angles as the bee has feet, and geometers prove that when regular hexagons are used to fill a circular figure the largest possible amount of its space is thus utilized. They feed outside in the fields, and toil inside the hive, fashioning the sweet substance that gods and men alike love—for the honey-comb reaches the altar, and honey is served both at the beginning of a
6 dinner-party and for the second[1] course. They have states like ours, with king and government and organized society. They are attracted by nothing unclean, and so none of them ever alights on a space that is dirty or evil-smelling, or even scented with fragrant oils, and so if any goes near them "oiled"[2] they sting him instead of licking him as flies do. Thus they are never seen, like flies, on flesh[3] or blood or fat, and so settle only on things

[1] *In secundam mensam.* Cf. Pliny, xix, 8 (towards the end): *Candidum papaver cuius semen tostum in secunda mensa cum melle apud antiquos dabatur.* There was honey, too, in the *promulsis.*

[2] *Unctus.* Cf. Aristotle, ix, 40. The use of unguents was very common in the case of wealthy Romans. They bathed before dinner, and were then anointed with sweet-smelling oils, so that *unctus* sometimes is equivalent to our "in evening dress."

[3] Cf. Aristotle, ix, 40, of which chapter Varro makes large use, as do Columella (bk. ix) and Pliny (bk. xi).

7 that have a sweet savour. It is a most harmless[1] creature, spoiling no man's work by pulling it to pieces, brave enough to resist any who should try to harm its own, yet conscious of its own weakness. With justice are they called the "birds of the Muses," for if ever they are scattered,[2] they are quickly[3] brought together again by the clashing of cymbals or the clapping of hands, and as men have given to these deities Helicon and Olympus, so to the bees Nature has given the wild and flower-clad mountains.

8 They follow their beloved king wherever he goes; if he is weary they support him; if he cannot fly, eager to save him, they bear him up on their shoulders. Never idle themselves, they hate idlers. And so they attack the drones, and drive them out from the hive, since the latter give no help in the work and eat up the honey, and a whole crowd of drones crying out in terror is often pursued by a few[4] bees. Outside the entrance of the hive they block up all apertures through which the wind gets to the combs with a substance called by the Greeks

[1] *Minime malefica.* Cf. Geoponica, xv, 3: "It does not spoil the work of others and most stoutly resists those who try to spoil its own; yet conscious of its weakness it makes the entrances to its home narrow and winding."

[2] *Displicatae.* Gessner conjectures *dispalatae. Dissipatae* is plausible.

[3] *Numero* occurs several times in Plautus with the meaning of *cito.* Cf. Festus, *ad verbum.*

[4] *Paucae.* Pliny (xi, 11) would seem to have found here *paucos,* as he says: *Cum mella coeperunt maturescere abigunt eos, multaeque singulos aggressae trucidant.*

9 *erithace.*[1] They all live as in an army, sleeping and working in regular and equal turns, and they send out what we may call colonies, and the leaders [of these colonies] get certain things done to the sound of their voice, imitating as it were the trumpet used for an army. And this happens when they have signals for peace or war which they make to one
10 another. But, Merula, I am afraid our friend Axius here is dying with impatience as he listens to these details of natural history, since I have said nothing about the profit, and so in the race I hand on the torch[2] to you.

So Merula began: About the profit, I have that

[1] *Erithace.* Pliny (xi, 7) devotes a chapter to the explanation of this and other special terms: *Prima fundamenta* commosin *vocant periti, secunda* pissoceron, *tertia* propolin *inter coria cerasque magni ad medicamina usus. Commosis est crusta prima saporis amari. Pissoceros super eam venit, picatus modo sed dilutior. . . . Propolis crassioris iam materiae, additis floribus—nondum tamen cera, sed favorum stabilimentum qua omnes frigoris aut iniuriae aditus obstruuntur odore et ipsa etiamnum gravi. . . . Praeter haec convehitur* erithace *quam aliqui Sandaracham, alii cerinthum vocant. Hic erit apum dum operantur cibus qui ipse invenitur in favorum inanitatibus sepositus, et ipse amari saporis.* Most of this is from Aristotle, ix, 40, but the *erithace* of Pliny is not that of Varro, which corresponds to the μίτυς of Aristotle. Varro (§ 23) describes *erithace* as that *quo favos extremos inter se conglutinant.*

[2] *Lampada.* A metaphor taken from the torch race (λαμπαδηδρομία) at Athens, used by Plato and Lucretius. Cf. the familiar line of the latter:

Et quasi cursores vitai lampada tradunt.

For *tibe* cf. note on iii, 7, 11.

to say which will perhaps please you, Axius. It is supported not only by Seius, who lets his bee-hives at a yearly rent of 5,000 pounds' weight of honey, but also by our friend Varro here, whom I have heard tell the following story. There were two brothers named Veianius, who served under him in Spain.[1] They came from near Falerii, and were then well-to-do, though their father had left them only a small farmstead and a bit of land—certainly not more than an acre. They set up bee-hives all round the building, kept a garden, and sowed all the rest (of their land) with thyme and cytisus and apiastrum—a plant called by some *meliphyllon* (honey-leaf), by others *melissophyllon* (bee-leaf), and by some
11 again *melittaena*.[2] Well, these brothers used never to make less out of the honey—taking a very reasonable estimate—than 10,000 sesterces[3] (£80) a year,

[1] *In Hispania.* It would seem from this passage and from iii, 12, 7, that Varro had held some command in Spain before 54 B.C., the date of these conversations, and consequently before his inglorious campaign in the great civil war.

[2] *Melittaenam.* An emendation of Keil's for the reading of the Archetype *mellinem*, in spite of the support which the latter gets from Philargyrius (ad Georg., iv, 63): *Melisphylla herba est quam ut ait Varro, alii apiastrum alii melinem appellant.* Columella (ix, 9, 8) has *melissophylli vel apiastri.*

[3] *Sestertia.* Ursinus suggests *sestertium*, and certainly this must be the meaning here and iii, 6, 6, and iii, 17, 3. I can find no parallel in any other author of *sestertia* used thus, and suspect the text in each case, as the corruption is easily explicable. In ii, 1, 14, we find *asinus venierit sestertiis milibus sexaginta*, i.e., for *sesterces*—60,000. *Sestertium*, the neuter noun, means, of course, 1,000 sesterces, but could have no place here.

but, as they said, they were always willing to wait, so as to interview the buyer at a favourable moment, and were in no hurry to sell if the time were bad. Well then, said Axius, tell me where and how to make a bee-house, that I may reap large profits.
12 Merula answered, You must set up your bee-hives in this way — others call them *melittotrophia* (places for feeding bees), while the same things are called by some people *mellaria*.—In the first place they should be if possible close to the farm-building, in a place where there are no echoes,[1] for this noise, it is thought, puts them to flight.[2] The air should be temperate, not blazing hot in summer, nor unsunned in winter; the hives should preferably face the place where the sun rises in winter, and should have in their neighbourhood plenty of food and pure

[1] *Imagines.* Cf. Columella, ix, 5, 6: *Nec minus vitentur cavae rupis aut vallis argutiae quas Graeci* ἠχοῦς *vocant*, and Pliny, xi, 19: *Inimica est et echo resultanti sono qui pavidas alternos pulsat sono.* For *imago* in this sense cf. Horace, Odes, i, 12, 4:

Quem deum cuius recinit iocosa
Nomen imago.

[2] *Fugae procerum.* This is, of course, unintelligible. Scaliger gives as "a certain emendation" *protelum*, and quotes Varro (De liberis educandis): *Remotissimum ad discendum formido, nimius terror et omnis perturbatio animi: contra delectatio protelum ad discendum.* Here *protelum* means "incitement." Ursinus and one MS. (Caesenas) have instead of *procerum*, *praeterea*, while Triller suggests *Porro caelum.* None of these is satisfactory, but of the three emendations Scaliger's seems the best—if the passage which he quotes from Varro is genuine. Up to now I have been unable to trace it.

13 water. If nature has not provided the proper food, the owner must sow such plants as are generally sought by bees, which are: roses, wild thyme, apiastrum (balm gentle), poppies, beans, lentils, peas, *ocimum*, galingale,[1] lucerne, and especially cytisus, which is very good for them when they are unwell. Moreover it begins to flower with the vernal equinox, and goes on flowering until the
14 second, the autumnal equinox. While, however, cytisus is excellent for their health, for honey-making thyme is the best. And this is the reason why the Sicilian honey bears the palm, for good thyme is found there in abundance. And so some people pound it in a mortar, add luke-warm water, and sprinkle over all the seed plots which have been sown for the bees.

15 As for the situation: one near the farm-house is best chosen for this purpose: some men have even stationed the apiary for greater safety in the portico[2] itself of the house. Hives are made round[3]

[1] *Cyperum.* Pliny (xxi, 18) describes the plant and the uses made of it in medicine.

[2] *In villae porticu.* Cf. iii, 3, 5.

[3] *Rutundas*, supply *alvos.* Columella (ix, 6) follows Varro closely: "If the district produces cork trees in abundance there is no doubt that the most useful hives are made out of thin cork, as such hives are neither bitterly cold in winter nor stifling in summer; fennel stalks also, as they resemble cork in nature, will do equally well; if neither material is at hand wicker work may be used, failing this, the wood of a tree hollowed out or cut into planks. The worst hives are those of earthenware, as they become furnaces in summer and ice-

by some people and of osiers where these are to be found; by others of wood or bark, or of a hollow tree or earthenware, while others make them rectangular of fennel stalks, and about three feet long and one foot broad, making them, however, of smaller dimensions in cases where there are too few bees to fill them, lest, being in a big empty space, the bees lose heart. All these constructions are called, from the nourishment (*alimonium*) which honey supplies, *alvi* (bellies), and when[1] people constrict their waists, it is, I imagine, in imitation of the shape of
6 the bees. Those hives which are made of withes are smeared inside and out with cow-dung, lest the bees be frightened away by their roughness. Hives are arranged on brackets projecting from the wall, in such a way that they do not shake, and do not touch one another when placed in a row; then, with a space between, a second and third row is made below the first, and they say it is better to have fewer rows rather than to add a fourth. In the middle of the hive small holes are made, right and

houses in winter. Two kinds remain; one fashioned with dung, the other built of brick. The first was properly condemned by Celsus owing to the danger of fire, the second had his approval though he did not hide the disadvantage of its not being portable."

[1] *Quas*, etc. It is improbable that the hives were "wasp-waisted," so that *quas* must refer to *alvos* in the primary sense of "belly." Aristophanes (Plutus, 561) speaks of men being σφηκώδεις, and Festus says that such were called *cinguli*: *Cingulos appellabant homines qui in his locis ubi cingi solet satis sunt tenues.*

17 left, for the bees to go in by, and at the end[1] a lid is put on the hives so that the bee-keepers can get the honey out. The best hives are made of bark, the worst of earthenware, for the latter are most powerfully affected by cold in winter and heat in summer. The bee-keeper must inspect them in spring and autumn about three times a month, using moderate fumigations, and should cleanse the hive from dirt
18 and expel any vermin. He should also see that there are not several kings in the same hive, as these do harm by reason of the quarrels they make. Some[2] people assert, as there are three species of kings amongst bees—the black, the red, and the striped, or according to Menecrates[3] two, the black

[1] *Extrema*, i.e., at the back. Cf. Pliny, xxi, 14, *Utilissimum operculum a tergo esse ambulatorium, sqq.*

[2] *Et quidam dicunt*, etc. This sentence, *monstrum, horrendum, informe, ingens* though it is, was probably thus written by Varro. The interminable parenthesis *tria genera—nigrum*, and the general confusion and clumsiness of the whole period is characteristic of him at his worst. In this passage, moreover, he is translating Aristotle, and does not seem to have understood him, as he failed occasionally to understand Theophrastus in Book I. Aristotle (ix, 40) writes as follows: *εἰσὶ δὲ γένη τῶν μελιττῶν πλείω . . . δύο μὲν ἡγεμόνων, ὁ μὲν βελτίων πυρρός, ὁ δὲ ἕτερος μέλας καὶ ποικιλώτερος . . . ἡ δὲ ἀρίστη μικρὰ στρογγύλη καὶ ποικίλη, ἄλλη μακρὰ ὁμοία τῇ ἀνθρήνῃ. ἕτερος ὁ φῶρ καλούμενος μέλας πλατυγάστωρ κ.τ.λ.* It will be noticed that Aristotle gives two varieties; one reddish, the other black and striped, and that Varro takes the words "black and striped" as referring to two separate species.

[3] *Menecrates*. Cf. i, 1, 9: *Easdem res etiam quidam versibus, ut Hesiodus Ascraeus, Menecrates Ephesius*, and Pliny, xi, 7.

and the striped (which is also the better one)—that if there is another king with him he quarrels with him and spoils the hive, as he either drives the other away or is himself driven away, taking with him a large number of bees. And so if there are two kings in the same hive it is better for the bee-keeper to
19 kill the black one. Of bees which are not kings the best are the small, round, striped kind. The thief, called[1] by others the drone,[2] is black and broad-bellied. The bee which resembles the wasp[3] does not join in the work, and has a habit of stinging, and the bees separate it from their company. Bees differ in being wild and tame—and here I mean by "wild" bees those that feed in woodland places, by "tame" ones those that do so on cultivated land. The wild[4] ones are smaller in size and covered with hairs, but are the better workers.

[1] *Vocabitur.* Keil suggests *vocatur*, which I have translated.

[2] *Fucus.* Aristotle distinguishes between the "drone" and the "thief" (*loc. cit.*): *ἕτερος ὁ φῶρ καλούμενος, μέλας καὶ πλατυγάστωρ. ἔτι δ' ὁ κηφήν. οὗτος μέγιστος πάντων ἄκεντρος δὲ καὶ νωθρός.* "The second kind, the so-called 'thief' is black and broad-bellied. And again there is the drone; this is the biggest of all, but stingless and stupid." Did Varro mistranslate *ἔτι δ' ὁ κηφὴν οὗτος*, "and again this drone," etc., and so identify it with the "thief"?

[3] *Vespa.* I have adopted Schneider's emendation, *vespae*, which accords well with Aristotle's *ἄλλη μακρὰ ὁμοία τῇ ἀνθήνῃ*, and Pliny's (xi, 18) *deteriores longae et quibus similitudo vesparum.*

[4] *Silvestres.* Cf. Aristotle (*loc. cit.*): *εἰσὶ γὰρ αἱ ἀπὸ τῶν ὁλονόμων δασύτεραι καὶ ἐλάττονες καὶ ἐργατικώτεραι καὶ χαλεπώτεραι.* Further on in the same chapter he says: "the little ones are better workers

In buying bees, the buyer must see whether they
20 are in good or bad health. Indications of good health are: thick swarms, sleeknèss, and the smoothness[1] and uniformity of the work accomplished. It is significant of ill-health if they look hairy and covered with bristles, dusty[2] as it were; unless, indeed, the time of hard work is upon them, for then toil makes them rough and in poor condition.

21 If you have to move the hives elsewhere, you must do so with care, noting the times to be preferred, and providing suitable places to move them to. For example, spring-time is better than winter, for if moved in winter they do not easily get used to their surroundings, and so generally fly away.

than the big; the edges of their wings are frayed and they look black and burnt, while the sleek and bright-looking bees are like idle women."

[1] *Leve.* Aristotle (*loc. cit.*) says that roughly fashioned cells are the work either of a "bad bee" or an inexperienced youngster.

[2] *Ut pulverulentae.* Cf. Vergil, Georg., iv, 95:

Ut binae regum facies ita corpora plebis
Namque aliae turpes horrent; ceu pulvere ab alto
Cum venit et sicco terram spuit ore viator
Aridus; elucent aliae, et fulgore coruscant
Ardentes auro et paribus lita corpora guttis.
Haec potior soboles.

It is often difficult to determine whether Vergil is paraphrasing Varro or merely using the same sources. As to the passage quoted, Columella (ix, 4, 2) states that Vergil followed the authority of Aristotle. Columella himself used principally for his treatise on bees the writings of Hyginus, Celsus, and Vergil, and very often quotes from the last named.

If you move them from a good situation to one where there is no suitable food, they desert. Again if you would transfer them from one hive to another in the same place, certain precautions must be
22 taken: the hive to which you mean to transfer them should be rubbed with *apiastrum* as this attracts them strongly, and you must place inside, not far from the entrance, some combs with honey in them, lest when they notice that there is nothing to eat[1]

. . . . . .

He says that when they are upset by the food they find in early spring, which consists of almond[2] and cornel flowers, they suffer from diarrhœa, and should be cured by giving them urine to drink.

23 What is called *propolis* is a substance used by bees for making (particularly in summer) a sort of gable in front of the hive, over the hole where they enter. Doctors[3] also used *propolis*, under the same

[1] *Inopiam.* Much must have here dropped out of the text. Aristotle, Columella, Pliny, Palladius and the Geoponica give not the slightest clue anywhere to the missing words. Keil thinks that the missing subject of *dicit* is Menecrates.

[2] *Ex floribus nucis Graecae.* Most of the ancient authorities speak of this disease—fatal to bees—as caused by the *tithymalus* (sea lettuce) and the seed of the elm (*samera ulmi*), and add that in those parts of Italy where these abound bees do not flourish (cf. Columella, ix, 13, 2). Columella (*loc. cit.*) mentions many remedies, as pounded pomegranate seed, rosemary, etc., and amongst them that given by Varro, *quidam bubulam vel hominis urinam, sicut Hyginus affirmat, alvis apponunt.*

[3] *Medici.* Pliny (xxii, 24, beginning) describes the uses of *propolis* in medicine. "It draws out stings and foreign bodies,

name, for making plasters; and for this reason it fetches more than honey in the Sacra Via. The so-called *erithace*[1]—a different thing from honey or *propolis*—bees use for sticking together the edges of the combs, and so it has the power of attracting them. Accordingly people smear the bough or other object on which they want a swarm to settle,
24 with a mixture of it and *apiastrum*. Honeycomb is what bees make of wax; this has many compartments in it, each one of which has six sides, as many sides as nature has given feet to each bee. It is said, too, that they do not extract from every flower alike the materials which they bring to the making of the four substances, propolis, erithace, honeycomb and honey. Some plants serve for but a single[2] one of them; thus from the pomegranate and asparagus bees extract food only, from the olive tree wax, from the fig tree honey, which is, however,
25 not good; other plants serve for two, as from beans, apiastrum, gourds, and cabbages are extracted wax

breaks up tumours, reduces hard swellings, assuages the pain of muscular rheumatism, and heals otherwise incurable ulcers." By the use of the word *protectum* Varro hints at a derivation of the word πρόπολις, viz., πρό and πόλις, "in front of the city."

[1] *Erithacen.* Cf. iii, 16, 8. Both Pliny and Columella state that it is the bees' food.

[2] *Simplex.* One is inclined to believe, with Keil and against Schneider, that the text is sound though the construction is harsh and elliptical. *Simplex* must be taken closely with *quae adferunt.* Of the things which they bring (1) there is a simple substance as . . . (2) *duplex ministerium praeberi*, "a two-fold supply is given by others, as for example . . ." etc.

and food; two likewise are obtained from the apple tree and wild pear tree, namely food and honey, and a different two—wax and honey—from the poppy. Some plants also supply the material for three; the almond tree, for example, and *lapsanum*[1] (cole-wort?), which furnish food, honey, wax. And so it is with what they extract from other flowers, for they choose some things to make one product,
26 others to make several, and also adopt yet another distinction—or rather it adopts[2] them—which is shown in the case of honey, when from one plant —say the blossom of *sisera*[3]—they make liquid honey, from another, such as rosemary, honey that is thick. And the same may be said of other things, thus the honey made from the fig is insipid, that from the cytisus good, that from thyme[4] the best of all.

[1] *Lapsanum.* Columella (ix, 4, 5) calls this *lapsana: Iam vero notae vilioris innumerabiles nascuntur herbae cultis atque pascuis regionibus quae favorum ceras exuberant; ut vulgares lapsanae.* Pliny (xx, 9) gives a description of it and places it *inter silvestres brassicas.*

[2] *Aut eas sequatur.* This quip of Varro's, as Keil points out, means merely that the bees cannot themselves determine the kind of honey which they will make from a given plant.

[3] *Sisera*, generally written *siser*, was, to judge from Pliny's (xiv, 5) description, the parsnip. Pontedera adopts the reading he found in Crescentius, *ciceris* (chick-pea), reasoning ἀπ' εἰκότων.

[4] *E thymo optimum.* Columella (ix, 4, 6) after giving a long list of plants which are visited by bees, mentions the following in order of merit: (1) thyme, which produces honey of the finest flavour; (2) almost as good: savory, wild thyme, and

27 Now as food is both liquid and solid, and the liquid food of bees is pure water, it should be provided for them to drink. This should be near their hives and should flow past in a stream, or form a pool the depth of which, however, must not exceed two or three finger-breadths, and in this stream or pool bits[1] of pot or small stones should be placed standing a little above the surface, so that the bees can alight on them and drink. In this matter you must be most careful to see that the water is pure, as this is of the utmost importance for the making
28 of good honey. As all weathers do not permit them to go far afield in search of food, food should be made ready for an emergency, for fear lest, being weather-bound, they may have to live on honey alone, or, when they have finished[2] it all, quit the

marjoram; (3) not so good, but still excellent: rosemary and *cunila* (a kind of wild marjoram); (4) producing honey of fairly good flavour: the blossom of the tamarisk and jujube tree; while the worst honey is produced from (5) esparto grass, *arbutus*, cabbages, and other plants which receive manure. Aristotle (v, 22 middle) says that bees get honey from all plants which have flowers enclosed in a cup: *φέρει δ' ἀπὸ πάντων ἡ μέλιττα ὅσα ἐν κάλυκι ἀνθεῖ.*

[1] *Testae.* There is, I think, little doubt but that Vergil had this passage before him when he wrote (Georg., iv, 25):

> *In medium* seu stabit iners seu profluet *humor*
> *Tranversas salices et grandia conice saxa:*
> *Pontibus ut crebris possint consistere, et alas*
> *Pandere ad aestivum solem; si forte morantes*
> *Sparserit aut praeceps Neptuno immerserit Eurus.*

[2] *Exinanitas.* This is Keil's interpretation, to which objection may be made that the antithesis is then false and that

hive. Accordingly, about ten pounds of ripe figs are boiled down in six *congii* (about four and a half gallons) of water, and when cooked[1] are made into cakes and placed near the hives. Other people have vessels filled with water sweetened with honey placed near at hand, on to which they put clean[2] wool, so that the bees may suck the hydromel through it, avoiding thus at one stroke the double danger of either drinking too much at a time or of falling into the water. Vessels are placed, one near each hive, and are kept filled. Other people pound raisins and figs together, pour *sapa* on the mixture, and then make it into cakes which are put in some[3] place

the passage would seem to require the emendation of Ursinus which Keil rejects, viz., *ac* (instead of *aut*) *relinquere. Exinanitas*, I imagine, means "deserted by its inhabitants," not "emptied of honey." It might, however, mean "if they have been emptied of honey."

[1] *Coctas.* The expression, *coctas in offas*, "cooked into cakes," seems harsh enough to justify Ursinus's emendation, *coactas.*

[2] *Lanam puram.* Cf. Columella, ix, 14, 15: "The better practice is, I believe, in winter, when the bees are starving, to place in small troughs close to the entrances of the hives dried figs which have been pounded and then steeped in water, or *defrutum*, or raisin wine, and to steep in these liquids a piece of clean wool on which the bees may stand and suck up the fluid as though through a pipe. Cf. Pliny, xxi, 14: *Si cibus deesse censeatur apibus, uvas passas ficosque siccas tusas ad fores earum posuisse conveniet. Item lanas tractas* (carded) *madentes passo aut defruto aqua mulsa.*

[3] *Ibi quo foras.* I have followed Victorius's interpretation—which is adopted by Keil—but with some misgiving, for, as Schneider points out, bees do not quit the hive in search of food during the winter. Instead of *foras* perhaps the *ad fores*

outside the hive where the bees, though it be winter,
29 can still go for food. When bees are about to swarm, which is generally when a good number of young ones have been born to them without mishap, and the hive means to send forth its children to form as it were a colony, just as the Sabines in old times often had to do owing to the large numbers of their children—you can tell when this is going to happen by means of two signs which usually precede it. (1) Some days before, especially in the evening, bunches of bees hanging together like grapes are to
30 be seen before the entrance of the hive. (2) When they are just on the point of flying away or have actually begun to do so they make a loud humming like the sound made by soldiers when moving camp. Those which first leave the hive fly about in sight, looking back repeatedly at the others who have not yet swarmed until they too come. When the bee-keeper sees what has happened, he terrifies them
31 by throwing dust[1] upon them, and by clashing brass

(or *foras*) of the passage quoted above from Pliny might be read: "Whither—to the entrances, that is—they can at least go for food even though it be winter." Varro then would be in complete agreement with Columella and Pliny. The precise definition of *quo* by a parenthetic *ad fores* is quite in Varro's manner.

[1] *Iaciundo pulvere.* In Vergil (Georg., iv, 67-87) it is in order to part the armies of two rival kings that dust is thrown, when:

Hi motus animorum atque haec certamina tanta
Pulveris exigui iactu compressa quiescunt.

Vergil's *compressa* corresponds to Varro's *perterritae*, but how the poet turns all to favour and to prettiness!

around them, while the place, which should not be far away, to which it is wished to bring them is smeared[1] with *erithace*, *apiastrum*, and other things of which they are fond. When they have settled, a hive is brought there, smeared inside with the enticing substances I have mentioned. This is placed close to the swarm, which is then forced by a gentle fumigation to enter it. When once the bees have entered the new colony they remain there with such goodwill that, even if you place next to them the old hive from which they came, they still prefer the new home.

32 Having stated what I considered to be of importance in the matter of bee-feeding, I will now proceed to discuss its object—the produce.

The time for taking[2] the honey-combs is indicated

[1] *Oblinunt.* For this some such object as *ramum* seems to be required, but it is quite possible that Varro disdained to be more explicit.

[2] *Eximendorum favorum.* As I have translated this passage, I had better perhaps say here *what* I have translated. This is the reading of the Archetype as given by Victorius: *Signum eximendorum favorum sumunt ex ipsis viris alvos habeat nem cōgerminarit coniectura capiunt si intus faciunt bombum et. cum intro eunt ac foras trepidant et si opercula alvorum cum removeissi favorum foramina obducta videntur membranis, cum sint repleti melle.* Scaliger's remark on this is: *Non est locus inquinatior isto, et sane cum emendandi omnem prorsus spem abieci.* And so say Victorius and Keil. In order to get something to translate I have supposed this to have been written: *Signum eximendorum favorum sumunt ex ipsis (fures alvos habeatne an contra exterminarit coniecturam capiunt si intus faciunt bombum et, cum intro eunt et foras, trepidant) et opercula alvorum cum*

by the state of the honeycombs themselves, for you may know that it has come, if, on removing the lids of the hives, the cells are seen to be covered with a thin skin, being then full of honey; (one guesses whether the hive still contains drones or has already expelled them by the loud buzzing the bees make inside the hive, and by their rushing in wild
33 excitement in and out of it). When the honey is removed, some say that nine-tenths should be taken and a tenth[1] left, for if you take away the whole the bees will desert the hive. Some people leave more

remoris (Keil) *si favorum foramina obducta videntur membranis —cum* sunt *repleti melle*, and I have translated the parenthesis last. As to *fures* for *viris*: Varro has already mentioned *fur* as a name given to drones (iii, 16, 19), and the killing of them seems to be indicated by what follows. *Alvos* (here, of course, nominative) is frequently used by Pliny and Columella for the bees in the hive. For *nem* I have written *ne an*. The alteration of *congerminarit* to *contra exterminarit* is violent, but Columella (ix, 15, 3) uses *exterminare* in this relation: *Hos quidam praecipiunt in totum exterminari oportere*. In the phrase *et si favorum . . . cum removeissi* Keil obviously deletes the wrong *si*, and in the last clause *sunt* instead of *sint* seems to be necessary. To the reading proposed much support is given by Columella (ix, 15, 4): *Ergo cum rixam fucorum et apium saepius committi videris adapertas alvos inspicies ut, sive semipleni favi sint differantur: sive iam liquore completi, et superpositis ceris tamquam operculis obliti demetantur*, and Palladius (June vii): *Item cum fucos a sedibus suis, qui sunt apes maiores, grandi intentione deturbant matura mella testantur.*

[1] *Decumam.* Columella (ix, 15, 8) says: "In summer time a fifth, and on the approach of winter, a third of the honey should be left; but on this point ancient authorities disagree.

than the amount stated. As in the case of ploughed lands those who have yearly[1] crops from them get more corn after intervals of comparative rest, so with hives, if you do not take the honey every year, or take less of it, your bees are busier and pay better.
34 The honey should first be taken, it is thought, at the rising of the Pleiads, next when summer is over, before Arcturus has fully risen, and for the third time after the setting of the Pleiads; and at this time, even if the hive be fertile, not more than a third of the honey should be taken, and the rest should be left for their winter supply, while if the hive be not fertile none at all should be removed. When a large amount is to be taken, it should not be removed all at once or in sight of the bees, lest they lose heart. If any part of the honey-combs which have been got has no honey in it, or if what it has is dirty, that
35 part must be cut off with a knife. Care should be taken to prevent the weaker bees from being bullied by the stronger, for so the yield is decreased. Accordingly the weaker are generally separated from the rest and given another king.

Those who will continually fight together should be sprinkled with water sweetened with honey, when they not only leave off fighting, but crowd together and lick one another. The effect is more marked if wine and honey is used, the smell of which makes

[1] *Restibiles.* Cf. i, 44, 2 and 3, a passage which fully explains this, and makes unnecessary the insertion of *non* before *restibiles* as proposed by Ursinus and others. Compare also ii, 7, 11.

them come to it with great eagerness and drink until they are stupefied.

36 If too few come out of the hive, and some constantly remain behind, recourse must be had to fumigations, and near by some sweet-smelling herbs[1] should be placed, in particular apiastrum
37 and thyme. The utmost care must be taken to prevent their dying from extreme heat or cold. If ever they have been surprised while feeding by a sudden shower or fall of temperature, which even they had not foreseen—for it rarely happens that they are deceived—and the big drops have struck them to the earth where they lie as dead, you must put[2] them together into some vessel, and place them out of the way in a sheltered and moderately warm spot, and the next day when the weather is at its best, bits of fig-wood should be burned to ashes, and these, when they are a little hotter than lukewarm,

[1] *Herbarum.* A use of the genitive rare in Latin, quite common in Greek, as in such phrases as *οἴνου πίνειν, τῆς γῆς τέμνειν*, etc. Cf. Varro, iii, 17, 7.

[2] *Colligendum.* It is remarkable that both Columella (ix, 13, 4) and Pliny (xi, 20) speak of this practice as adopted for the resuscitation in the spring of bees that have died on the approach of winter. Pliny says: "Some people think that the dead bees revive if they are kept in the house during the winter, and then, when the spring comes are warmed in the sun and kept hot for a whole day in fig-wood ashes." Columella (*loc. cit.*) makes substantially the same statement about bees which have died from disease, taking Hyginus as his authority, "who himself followed ancient authors and dared not assert the truth of the story." In any case, Columella says, the best thing is to prevent them from dying.

should be sprinkled over the bees, which must then be gently shaken, vessel and all—so that you do not touch them with the hand—and placed in
38 the sun. Thus thoroughly warmed they are restored and come to life again, just as it happens in the case of drowned flies. This treatment is to be carried out close to the hives, so that when won back to life, each bee may return to his own work and home.

CHAPTER XVII

OF FISH-PONDS

1 MEANWHILE Pavo[1] came back to us and said: Suppose we weigh anchor; the votes[2] have been given, and the tribes are casting[3] lots, and the crier is beginning to shout out[4] the name of the aedile chosen by each tribe. Appius at once jumped up; meaning to greet his candidate on the spot, and

[1] *Pavo.* See iii, 5, 18.

[2] *Latis tabulis*, i.e., *suffragiis.* Cf. Cicero, Pro Plancio, 20: *Vocatae tribus* latum *suffragium, descriptae, renuntiatae.*

[3] *Sortitio tribuum*, to decide, in the case of competitors who had received an equal number of votes, which should be chosen. Cf. Pro Plancio, 22: *Neque enim umquam maiores nostri* sortitionem *constituissent* aedilitiam, *nisi viderent accidere posse ut competitores pares suffragiis essent.* This speech throws much light on the *comitia aedilitia.*

[4] *Recini.* The *verbum solenne* is *recitari.* Keil thinks there is here a reference to the "sing-song" utterance of the crier.

then go on to his country house.[1] Whereupon Merula remarked: Some other time, Axius, I will give you the third act[2] concerning farm-yard feeding. They (Merula and Appius) rose, and Axius and I stood looking back at them as they went, for we knew our candidate would come that[3] way. Said Axius to me: I am not sorry that Merula has left us at this point, for I know pretty well
2 what remains to be said. Thus: there are two sorts of fish-ponds, those of fresh water and those of salt.

[1] *Hortos.* Varro has the same phrase, *discedere in hortos*, at the end of Book II: *Itaque discedimus ego et Scrofa in hortos ad Vitulum. Horti* has different meanings: (1) gardens in our sense—Varro (i, 16, 3) speaks of market gardens: *sub urbe hortos*; (2) pleasure grounds, whether public or private; (3) the estate of a country gentleman—the villa with its grounds. Entertainments were frequently given *in hortis*, cf. Cicero (Phil., ii, 6): *Hodie non descendit Antonius. Cur? Natalitia dat in hortis.* And again, De Officiis, iii, 14: *Ad cenam hominem in hortos invitavit in proximum diem.* For dinners *in hortis* stone *triclinia* were commonly used. In several of the *peristylia* of the houses at Pompeii these stone couches are to be seen disposed round a central table. They are very comfortable. I imagine then that Appius intended to congratulate his candidate (he seems to have been sure that he would be elected!) and then go and dine with him, just as, presumably, Varro and Scrofa went to Vitulus's country place to spend what remained of the holiday. Perhaps Appius's candidate lived on the slope of the Pincian Hill (*collis hortorum*) which was less than a mile away from the Villa Publica.

[2] *Tertium actum*, i.e., *de piscinis.* Cf. iii, 3, 1.

[3] *Et candidatum.* I have translated Ursinus's emendation *ea*, for the *et* of the Archetype seems pointless, seeing that Appius's candidate was *not* coming.

Those of the one kind, in which water is supplied to our home-fed fishes by the river Nymphs,[1] are kept by men of the people, and are profitable enough; while the other sea-water ponds which belong to the nobles, and get both water and fishes from Neptune, appeal more to the eye than to the pocket, and empty rather than fill the owner's purse. For they cost a great deal to build, a great deal to stock, and a great deal to feed.
3 Hirrus[2] used to make 12,000[3] sesterces (£96) a year out of the buildings round about his fish-ponds—and spent every penny of it on food for the fishes. And no wonder, for I remember he lent on a single occasion to C. Caesar 2,000[4] lampreys by weight, and that his villa fetched four million sesterces (£32,000) when sold, owing to the great

[1] *Lymphae.* Keil in both editions writes this word with a small initial letter. It seems much better to write it with a capital, for the sake of the antithesis between the Lymphae and Neptune. Varro has already (i, 1, 6) mentioned Lympha as a goddess: *Nec non etiam precor Lympham ac Bonum Eventum.*

[2] *Hirrus.* Cf. ii, i, 2.

[3] *Duodena milia.* Cf. note, iii, 16, 11.

[4] *Duo milia.* Pliny (ix, 55) has six thousand: *Murenarum vivarium privatim excogitavit C. Hirrus ante alios qui cenis triumphalibus Caesaris Dictatoris sex milia numero murenarum mutuo appendit* (Varro's *mutua inpondus dedit*). *Nam permutare quidem pretio noluit aliave merce.* Hirrus would accept no payment in money, but stipulated for the return of the same weight of lampreys. Macrobius (ii, 11) repeats Pliny's statement and adds the detail that Hirrus's villa was not very big (*quamvis non amplam aut latam*).

quantity of fish in its waters. So with good reason is the inland pond, owned by common people, called "sweet" and the other "bitter," for which of us is not contented with a single fish-pond of the former kind, and on the other hand, what man that has begun with a single salt-water pond, but goes on to
4 have a regular suite of them? For just as Pausias[1] and the other painters of his school have large paint-boxes divided into compartments in which to keep their wax-pigments of different colours, so our wealthy men possess fish-ponds having similar compartments for keeping separate different kinds of fish, these fish being sacred and more inviolable than those Lydian ones that you used to tell us

[1] *Pausias.* Pliny (xxxv, 11, beginning) gives an interesting account of him. He was a native of Sicyon, which he made for a long time "the home of painting," and was a contemporary of Apelles, and taught by the same master, Pamphylus. He was the first to become famous as a painter of encaustic pictures (Ceris *pingere ac picturam inurere*). The most interesting fact about him, however, is that, according to Pliny, he discovered fore-shortening: *Eam enim picturam primus invenit quam postea imitati sunt multi, aequavit nemo. Ante omnia, cum longitudinem bovis ostendere vellet, adversum eum pinxit non transversum unde et abunde intelligitur amplitudo . . . magna prorsus arte in aequo exstantia ostendens et in confracto omnia solida.* Did he show the naïve delight, one wonders, in his invention, which Uccello, who re-discovered the art some eighteen centuries later, displays in his pictures? Varro was doubtless familiar with his original works, for in the aedileship of Aemilius Scaurus, who was consul in the year of Varro's birth, Sicyon being unable to pay its debts, they were forfeited and taken to Rome.

about, Varro, which, when you were sacrificing near the sea came up at the sound of a flute to the edge of the shore and quite close to the altar, no one daring to catch them—it was about the same time that you saw the Lydian islands dancing[1] round and round—well, these fishes of ours are equally sacred, so sacred that no cook dares to call them over[2] the coals. Our common friend Quintus Hortensius had fish-ponds near Bauli[3] which had cost

[1] χορευούσας. Pliny devotes a chapter (ii, 95) to "islands which always float," and mentions many such in Italy near Reate, Statona, etc., as well as those in Lydia called, from the abundance of reeds (κάλαμοι) which grew on them, *calaminae*. With regard to the latter he says: *In Lydia quae vocantur Calaminae non ventis solum sed etiam contis quolibet impulsae multorum civium Mithridatico bello salus.* So that Varro probably saw these islands when he was one of Pompey's *legati* in 67 or 66 B.C. Scaliger quotes the following passage from Martianus Capella (which I have not consulted): *In Lydia Nympharum insulas dicunt quas etiam recentior asserentium Varro se vidisse testatur quae in medium stagnum a continenti procedentes cantu tibiarum primo in circulum motae, dehinc ad litora revertuntur.*

[2] *In ius.* Cicero somewhere in the Verrines makes the same sort of pun, speaking of the *ius Verrinum*, i.e., Verres's administration of justice, or "Boar's gravy." The passage in the text means literally "to summon to *ius*, trial or sauce."

[3] *Baulos.* The modern Bacoli, about two miles from Baiae (Baja). Ruins, now partly under water, of the very fish-ponds mentioned here by Varro are still to be seen at Bacoli. Cf. Pliny (ix, 55): *Apud Baulos in parte Baiana piscinam habuit Hortensius Orator in qua murenam adeo dilexit ut exanimatam flesse credatur.* Cicero called Hortensius *piscinarius* (Macrobius, ii, 11, and Cicero, Ad Atticum, i, 19).

him a great sum to build, and I know, for I often used to stay with him at his country-house, that he used always to send to Puteoli to buy the fish for
6 dinner. And it was not enough that his fish-ponds didn't feed him, but he must needs, if you please, with his own[1] hands feed them, being more anxious lest his mullets should feel the pangs of starvation than I do lest my asses[2] at Rosea should go hungry. He spent, too, a good deal more on the former than I do on the latter in the matter of both food and drink. For all I need for the feeding of my costly asses is one little slave, a trifle of barley, and water found on the estate, while Hortensius in the first place kept an army of fishermen to feed the fish, who used constantly to bring him masses of tiny fishes which were destined to serve as food for the big
7 ones. He would buy, besides, salt-fish, and throw

[1] *Ipse*, "with his own hands." Macrobius (ii, 9) tells this story about Hortensius: "He used to water his plane trees with wine, and in a certain case in which he and Cicero had both to speak, he asked Cicero as a favour to change with him, as he was obliged to go home to water with his own hands a plane tree which he had planted on his Tusculum estate"—*abire in villam necessario se velle ut vinum platano quam in Tusculano posuerat* ipse *suffunderet*. Macrobius says also that Hortensius prosecuted his colleague for assault and battery, because the latter, meeting him on a narrow footpath, had jostled him and disordered the folds of his *toga*—which he used to arrange before a looking-glass!

[2] *Asinos*. Cf. iii, 2, 9. In the *mulli* above, Schneider sees a pun, from the similarity of sound in *mulli* and *muli*. It is very likely that he is right, for the pun would give point to the antithesis between *mullet* (mules) and asses.

it into his ponds, when the sea was stormy, and[1] when, owing to the weather, the market that supplies the fish-ponds (the sea, that is) refused its food, and the live food, the fish eaten by the common people for supper, could not be got to shore with a net. You would sooner, said I, have got Hortensius's consent to your taking his carriage-mules from the stable and keeping them for your own, than a
8 bearded mullet from his fish-pond. And, Axius went on, he was as much troubled about a sick fish as about a slave who was not very well, and so took less pains to prevent a slave who was ill from drinking cold water than to see that his fish had it fresh. For neglect in this matter he used to blame Marcus Lucullus,[2] and thought little of his fish-ponds, as, he said, Lucullus had no proper tidal basins, and as the water was stagnant his fish lived in an un-
9 healthy place, whereas Lucius Lucullus, who near

[1] *Ac*. The sense of the passage would be greatly improved if *nec* were read instead of *ac*, for then *mare* (*piscinarum mare*), doubtless interpolated, could be explained as a scribe's note on *macellum*. Hortensius used to buy salt fish, when, owing to a storm, the market which usually supplied his fish-ponds (*i.e.*, the sea) did *not* supply food, etc. Columella (viii, 17, 12) recommends all kinds of salt fish, rotten sardines, etc., and the sweepings of the fishmongers' stalls (*quae cetariorum officinis everrantur*).

[2] *Marcus Lucullus*. A brother of Lucius Lucullus. The two are often mentioned together by Cicero, cf. De Provin. Consular., 9, and De Officiis, ii, 14 (*ut duo Luculli*), etc. Cf. Velleius Paterculus (ii, 49, 1): *si prius gratulatus ero Q. Catulo*, duobus Lucullis, *Metelloque et Hortensio*.

Naples had pierced a mountain[1] and let in the sea into his fish-ponds, whereby the latter themselves became tidal, had as fine a fishing-ground as Neptune—for it seems as though he had brought his beloved fish on account of the boiling heat into a cooler climate, as is the custom of the Apulian[2] cattle breeders, who lead their flocks along the cattle-tracks to the Sabine mountains. And in the case of his country-house at Baiae he was when building it consumed with such eagerness that he gave his architect permission to spend money as though it were his (the architect's) own, provided that he managed to make a passage from his fish-ponds to the sea, and threw out a mole by which twice a day from the first quarter of the moon to the next new moon the tide could come in and go back to the sea—and thus cool his fish-ponds.

10 Our conversation had reached this point when there was a noise on the right, and our candidate, now aedile-designate came into the Villa Publica clad in the *toga*[3] *praetexta*. We went up to him

[1] *Montem.* Cf. Pliny, ix, 54. *Lucullus exciso etiam monte iuxta Neapolim maiore impendio quam villam aedificaverat, curipum et maria admisit. Qua de causa Magnus Pompeius Nereen togatum eum appellabat.* This Neapolitan villa is mentioned by Cicero (Academicorum, ii, 3) in connection with Hortensius's villa, *ad Baulos*, on the occasion of a visit paid by Cicero, Catulus, and Lucullus to Hortensius. It stood on the hill of Posilipo, where Vedius Pollio, Vergil, and many others had villas.

[2] *Ut Apuli solent.* Cf. ii, 1, 16, and ii, 2, 9.

[3] *Cum lata.* Their candidate had just been elected Curule

and after congratulations escorted him to the Capitol. And so he to his house,[1] we to ours. And thus ended the conversation about "home feeding," of which, my friend Pinnius, I have given you the gist.

Aedile and so had the right to wear the dress peculiar to senators and certain magistrates—the *toga praetexta*—which had a broad band of purple (*latus clavus*). The word to be understood after *lata* is probably *purpura*. For the right of a Curule Aedile to wear the *toga praetexta* cf. Cic. in Verrem, v, 14—the *locus classicus* for the duties and privileges of a Curule Aedile.

[1] *Endo suam domum*. This is a deliberate archaism and is thought to be an imitation of Ennius's *endo suam do* (quoted by Ausonius), where the *do* is an apocopated form of *domum* resembling Homer's δῶ.

EXCURSUS I

ON THE TIME AND PLACE OF THE DIALOGUE IN BOOK II

WITH regard to the place and occasion of the dialogue in Book II there is great difficulty; for whereas in the two other books Varro mentions these explicitly, here neither is indicated, and the conversation begins so abruptly that nearly all the commentators have been driven to infer a large lacuna in the text. Gesner, however, followed by Gaston Boissier, maintains that nothing is missing, and that Varro, like Homer in the Odyssey, plunged at once into the heart of his subject in order to quicken the curiosity of the reader. This opinion is, I think, quite untenable, for save in this respect the plan of all three books is the same—introduction, dedication, place, and occasion, while the obvious corruption of the text at the point where the dialogue begins, and the fact that here fresh copyists took up the work of transcription, make it not improbable that much has been lost, especially as the place where the gap is thought to be is precisely where in the two other books Varro describes the circumstances in which the conversations arose—namely, at the end of the introduction. Most editors, assuming this loss, refuse to waste time on the attempt to solve an insoluble riddle, and Pontedera (*Curae Posthumae*) even charges Varro with self-contradiction, for

he says: "from Varro's statement that the dialogue took place when he was in command of the fleets between Delos and Sicily we must infer that the place was not in Italy, while from xi, 12, *libertus in urbem veniens ex hortis*, it is clear that it was in Rome." The problem may be insoluble, but deserves, I think, more consideration than it has received.

In the first place, then, it is clear from viii, 1, and xi, 12, that the interlocutors were met together to celebrate a holiday. Now as Varro was careful, in the first book, to choose a time and place especially appropriate to the topic to be discussed—the Sementivae and the temple of Tellus—(in the third there was no divinity or temple which was connected with his subject) it is *a priori* probable that he took the same course in the second. As the topic was here cattle, and the speakers were *pastores—pecuarii*—no other festival could be so appropriate as the Palilia, the great shepherd-festival and the birthday of Rome, which was founded by shepherds. And there is direct evidence in the text for this supposition. Lucienus, v, 1, after greeting the company, leaves them for a few minutes to "pay his pence to Pales" (I read *Pali bis* for the *Palibus* of the archetype, Schneider's *Palilibus*, or Keil's *Laribus*) and the *libertus* of Menas (viii, 1) says; "the *liba* are ready, and will the gentlemen come and sacrifice for themselves." But *liba* were especially characteristic of the bloodless sacrifices to Pales, cf. Ovid, Fasti, iv, 774:

> At nos faciamus ad annum
> Pastorum dominae grandia liba Pali.

It may be regarded, I think, as practically certain that

these imaginary conversations are supposed to have been held at the festival of the Palilia, 67 B.C.

To fix with the same certainty the place where they took place is, I fear, not possible, but a *prima facie* case may perhaps be made out for Buthrotum or Cassiope.

Varro at the end of the introduction says that he will reproduce conversations which he had had with owners of large cattle-ranches in Epirus, at the time of the war against the Pirates when, as a *legatus* of Pompey, he was in command of fleets between Delos and Sicily; so that the scene of the dialogue must have been outside Italy. Pontedera's second inference that it must have been Rome is absurd, for *urbs* unqualified does not necessarily mean Rome, and the Palilia being the birthday of the capital, was doubtless celebrated not only in Italy but in all the Roman provinces. As Varro states that the dialogue is between Epirot cattle-breeders, and as three of the speakers are demonstrably Epirots—Atticus, whose income came principally from cattle-farms in Epirus (cf. Corn. Nep., Atticus), Cossinius, and Lucienus, who addresses the other two as Συνηπείρωται (v, 1)—and as the coast there would be in Varro's beat (the Sicilian and Ionian Seas as far as Acarnania, cf. Appian B. Mith. 39), and as Epirus was celebrated for its cattle and so was not unlikely to be chosen by Varro for these imaginary conversations, some city in or near Epirus seems indicated.

It appears from the beginning of the dialogue that the discussion was continued from a short while before, when it had been interrupted by the arrival of the doctor. Now in i, 4, 5, Varro says that when the fleet and army were at Corcyra, and all the houses were filled with sick or dead people, he managed by taking certain precau-

tions to bring back his comrades and household safe and sound. Corcyra was just off Epirus and opposite Buthrotum, where Atticus had a house (Cicero, Ad Att., iv, 8). We know, too, from Cicero (Ad Att., i, 5-8) that between 68 and 66 Atticus was travelling in Greece; and that Corcyra was malarious, for in 51 Atticus (Ad Att., vi, 2) caught a bad quartan fever there from which he recovered with difficulty (Ad Att., vii, 5, 9, etc.). If Varro was at Cassiope (*portus Corcyraeorum*, cf. Cic. Ad Div., xvi, 9) no doubt his friend Atticus, if then at Buthrotum, would run over to see him. The epidemic which was raging would explain the visit of the doctor.

Again, the talk must have taken place in some building in the city (vii, 1), for in v, 1, Lucienus is spoken of as *introiens* (coming inside), and not in a private house, for the *libertus* of Vitulus was on his way to Varro's quarters when seeing him and the others he came to them. It seems likely that the building was a temple (just as in Book I), possibly an aedes Palis. I would suggest the following as a plausible reconstruction of the plot.

Some time in April 67 B.C. the fleet with which Varro was hunting pirate galleys put into Cassiope, the principal harbour of Corcyra. On the 20th, or a little before, Atticus and Cossinius came over to see him, and began a conversation on cattle-raising, which was interrupted by the arrival of the doctor, who carried off Varro (ποιμένα λαῶν) to see a sick man, or to consult about the health of the soldiers and seamen. On the following day Varro, Atticus, Cossinius, Murrius, Vaccius, Scrofa, Pomponius Vitulus—probably a kinsman of Atticus—and Menas met by appointment to make arrangements for spending the Palilia. Vitulus, who had a house and grounds outside the city (xi, 12), asked Varro and

Scrofa to spend the holiday with him, and on their accepting went away to give the necessary orders. Menas, who had a house not far away, invited others of the party to come to him, and he too left. After some general conversation (as in Books I and III) Varro prepared to go to Vitulus's, but the rest refused to let him depart (II, i, 11) until he had given the discourse on cattle-raising which he had previously begun. And so the dialogue begins and goes on for four chapters, when Lucienus arrives, is scolded by the others for coming late, and goes off to pay his pence to Pales, taking Murrius with him as a witness, for fear they should try to make him pay his contribution twice over. He is absent for a few minutes, then returns to discourse later on horses. A few chapters further Menas's freedman comes to tell them that the sacrificial cakes are ready, and to ask his friends to go and sacrifice. The Palilia, by the way, was a private as well as a public festival (cf. Scholiast to Persius, i, 72).

Later still (xi, 12), Vitulus, growing impatient—and no wonder!—sends his freedman to beg Varro and Scrofa to come at once and not to cut short the holiday as they were doing. "And so, my friend Turranius Niger, we parted, Scrofa and I through Vitulus's grounds to his house, while the rest of the party went some to Menas's, some to their own homes."

EXCURSUS II

THE TEXT OF THE RERUM RUSTICARUM

THERE is not much to be said concerning the text of these books, which rests in the last resort upon the authority of one manuscript only, which has long ago disappeared. In 1794 Schneider pointed out that all existing manuscripts were derived directly or indirectly from it, and this fact has been abundantly proved in modern times by the great German scholar Keil. This manuscript—the Marcian—which Pietro Vittorio calls "liber antiquissimus et fidelissimus," was in his time in the library of St. Mark at Florence, and was much used by him in the preparation of his edition of Cato and Varro, published in 1541. Its most important readings —where they diverge from the printed editions and other manuscripts to which he had access—are given, and are occasionally discussed in the "Explicationes suarum in Catonem, Varronem, Columellam castigationum," which appeared in 1542. Before Vittorio, Angelo Politian had in 1482 collated this manuscript with the Jenson edition (editio princeps 1472, made under the auspices of Georgius Merula) and had entered in his copy of the latter all readings of the Marcian MS., which differed from the printed edition.

Of remaining manuscripts the most important are the

Codex Parisinus (early thirteenth century), a faithful transcript of a good copy of the Marcian, not mentioned by Vittorio, and the Codex which is called by Keil "Mediceus" (fourteenth century), and is frequently referred to by Vittorio as "Semivetus," or "Gallicanus." By the help of Politian's collation, Vittorio's edition of 1541, his "Explicationes" of 1542, and the two manuscripts mentioned, the Archetype has been disentangled from the numerous emendations of Renaissance scholars which, owing to ignorance of Varro's peculiar style, and the fact that they were not made in accordance with any fixed principle of textual emendation are in many instances as worthless as they are ingenious. Unfortunately, however, the Archetype thus restored to us is full of corruptions, and neither Politian nor Vittorio has given any clue to its probable date—though Vittorio calls it very ancient—or mentions the script in which it was written. It seems probable, however, that the Archetype was an early Carolingian Minuscule, for (1) Vittorio says that it was older than his other manuscripts *longo intervallo*; (2) the abbreviations, as we may gather from his "Explicationes," are few and simple, which is the case with early minusculae, but not with late; (3) the mistakes made are precisely those usually made by the scribes of the ninth and tenth centuries, when copying from earlier minuscule MSS., written in one or other of the so-called national scripts. As an example, "a" and "u" are persistently confused in the Archetype—twenty-one cases occur in the three books. Now Alcuin in a letter to Charlemagne refers to the corruptions which arose from the difficulty of distinguishing between them—"possunt quaedam ex his exemplis vitio scriptoris esse corrupta et 'u' pro 'a' vel etiam 'a' pro 'u'

posita." (Lindsay, Latin Textual Emendation, 84.) In some Merovingian and Lombard scripts these letters are almost indistinguishable. Again the first words of the first book are given by Politian as "P. otius," for "si otium"—and "si" in some pre-Carolingian minusculae looks exactly like P. There are of course also the mistakes common to scribes of all ages—dittography, haplography, wrong division of letters to form words as well as those arising from the misreading of certain abbreviations, which varied in different scripts: cf. the confusion between the forms of the relative, "qui," "quae," "quod" "quam"; "aliqui" and "aliquod" ("aliquot"), etc.

On the other hand, had the Archetype been written in Merovingian, Lombardic, or Visigothic script, Vittorio would surely have mentioned the fact.

For these and other reasons it seems probable that the Archetype was a ninth- or tenth-century minuscule, copied from a pre-Carolingian minuscule.

For the emendation of the faulty text of the Rerum Rusticarum use has been made of: (1) internal evidence from the books themselves; (2) Varro's other writings; (3) quotations made from the Rerum Rusticarum by the ancient grammarians, especially by Monius Marcellus, who quotes frequently from the first book; (4) the sources which Varro used, especially Cato, Theophrastus, and Aristotle; (5) the Geoponica, in which Varro is often literally translated; (6) the authors who without quoting his actual words, paraphrase or expand passages, or cite facts to be found in the Rerum Rusticarum—Columella, Pliny, Palladius, Servius, Macrobius, St. Augustine, Isidore of Seville, etc. For the right spelling of proper names much assistance is given by Cicero, Caesar, and Horace, and by inscriptions.

There is besides help to be gained from a method which, I think, has not been applied before to Varro. It consists in digesting and tabulating obvious corruptions in the text which can at once be corrected, and using the results for further emendation. As a case in point: there are in these books several examples of such a phrase as "duodena milia sestertia," III, 17, 3, which does not seem to be any Latin for 12,000 sesterces. Several scholars suggested "sestertium," but both Schneider and Keil retained "sestertia" in the text, probably because the emendation lacked paleographical confirmation. But "sestertium" would in an early minuscule MS. most probably be written "sestertiū"; in early Lombard and Franco-Lombard script the letters "a" and "u" are barely distinguishable, and on turning to our table of usual corruptions we find that the confusion between the two letters is of constant occurrence in the text, while in many cases the line above a vowel, which stands for "m" or "n" is frequently neglected. It is then hardly possible to doubt that the scribe found "sestertiū," in his text, neglected the stroke above the "u," and for the latter wrote "a."

This method, as will be seen, I have used freely in the emendations which have been attempted in the commentary and in Excursus III.

EXCURSUS III

CRITICAL NOTES AND SUGGESTIONS

Quae Coniecturae meae tum mihi placebunt cum a doctioribus viris probari audiam.—VICTORIUS.

I, 13, 1. "Fructus, ut est vinum et oleum, loco plano in cellis, item ut vasa vinaria et olearia potius faciendum: aridus, ut est faba et faenum in tabulatis." Keil (p. 45) simply expunges "ut," and gives a wholly unsatisfactory explanation of the untranslatable "potius." Pontedera (Curae Secundae) suggests "ubi" instead of "ut," and "possint esse" for "potius." But it is difficult to see how "potius" could have arisen from "possint esse." Instead of the latter I would propose "ponas." In early minuscule MSS. it is often difficult to discriminate between "ti" and "n" (cf. II, 1, 15, where "statim" is found in the Archetype for the obvious "sanum"—in II, 2, 16 "n" becomes in the Archetype "ti"), and in early Lombard script the word itself—"potius"—looks extremely like "ponus" or "ponas." As I have shown in Excursus II "a" and "u" are very frequently confused in these books, *e.g.*, "-um" for "-am" (*passim*), "putulas" for "patulas" (II, 2, 11), etc. Again "ut" or "uti" is frequently found for original "ubi" (cf. I, 6, 2, III, 6, 15).

Varro appears to mention three places (1), "Cellae," where liquid produce, such as wine and oil, was stored

in "dolia"; (2) a place—the "torcular" or "forus vinarius et olearius"—for the plant needed for the making of wine and oil; and (3) barns for dry produce. Columella, in a chapter (I, 6, 9) which is little else than an elegant paraphrase of Varro, mentions these three places together: "Pars autem fructuaria dividitur in cellam oleariam, torcularium, cellam vinariam," etc. The passage would read, as amended: "Fructus, ut est vinum et oleum, loco plano in cellis (item *ubi* vasa vinaria et olearia *ponas* faciendum): aridus ut est faba et faenum in tabulatis."

I, 13, 3. "Cohortes in fundo magno duae aptiores: una ut interdius compluvium habeat lacum ubi aqua saliat, qui intra stylobatas cum velit sit semipiscina."

Keil (p. 47) makes "compluvium" an adjective—of which no other example is to be found—and interprets thus: "Compluvium autem lacum dicit in quem interdiu canalibus aqua . . . ducitur." But it is obvious that nothing like this is contained in or implied by the text, for "compluvium" must either be the familiar noun or "compluvium lacum" mean a tank or pond in which *rain* collects. In either case "interdius" seems to be inadmissible and the word "saliat" inappropriate.

In Chapter XI Varro had said that the villa should possess a spring within its precincts, or that water should flow into it all the year round; but that if there were no "live" water a "lacus sub dio" should be made for the cattle; and Palladius (I, 31) states that there should be two "piscinae," which could be filled "aut fonte aut imbre." It seems possible that Varro alludes in the text to the two alternatives: meaning that when there was no "aqua viva," *i.e.*, spring or stream, a "compluvium" was to be employed from which

the rain water would fall into an "impluvium," which might be used as a pond—the "lacus sub dio" of Chapter XI—while, if running water were at hand (for "aqua saliens" opposed to "putei" or "fontes," cf. Pliny, Ep., ii, 17, 25), it was to be directed into a pond in the yard, probably into the portico where it would form a *semi-piscina*, having the *stylobates* on two sides (a *piscina* had usually masonry on all four sides). I suggest therefore: "Cohortes in fundo magno duae aptiores: una ut interius (having inside it) compluvium habeat, *aut* lacum ubi aqua saliat quae (Schneider) intra stylobatas cum venit (Merula, approved by Keil) sit semipiscina." One may regard the omission of "aut" as a case of haplography, of which we have many examples in these books. "Qui" improperly written for "quae" occurs very many times (cf. II, 1, 27, etc.).

I, 15, 1. "Praeterea sine saeptis fines praedii sationis notis arborum tutiores fiunt." Schneider, followed by Keil, cuts the knot by deleting "notis" and writing "satione" for "sationis." If the text may not stand—and I do not feel sure that it may not—"farm boundaries if unfenced are made safer by the indications given by the sowing of trees," though the double genitive is terribly harsh, perhaps might be read: "Praeterea sine saeptis fines praedii, satione si noti (or notati), tutiores fiunt." For the form of the expression "si noti" cf. I, 13, 1: "Si fessi opere"; II, 4, 20, "si in acervo positum"; III, 5, 2, "si enim late ibi diffusa aqua . . . bibitur inutilius."

I, 10, 2. "Is modus acnua latine appellatur." The use of the word "latine" here and in II, 1, 5, "in Samothrace Caprarum quas *latine* rotas appellant," is perhaps due to the ignorance of the scribe. Pontedera (Cur. Sec.) points out that Varro's usual formula in such cases

is "nostri appellant," "a nostris appellatur." With regard to the first passage Columella (v, 1, 5) has: "Sed hunc actum provinciae Baeticae rustici acnuam vocant," and compares the Baetic "acnua" with the Gallic "arepennis" (Fr. *arpent*). Columella's uncle, on whose authority the statement is made, was a native of Gades, and had probably first-hand knowledge of the fact. Varro also, who once stayed for a long time in Spain (cf. III, 12, 6), was likely to know the local term. Perhaps "Baetice" was originally written and "latine" put instead of it by a scribe who did not understand the former word. In II, 1, 19 "b" and "l" are confused, "Obsippo" for "Olisippo." In the second passage, "in Samothrace caprarum quas *latine* rotas appellant," I would adopt Turnebus's emendation approved by Scaliger—"platycerotas" (πλατυκέρωτας), cf. Pliny, xi, 37. A few lines before the copyist had written "la" for "pla" ("laciditatem" instead of "placiditatem"). Perhaps he read here "latyce rotas," and not knowing what to do with "latyce" wrote instead a word he did know—"latine."

II, 1, 1. "Insta an quid ille, quae coeperat hic disserere quae esset origo, quae dignitas, quae ars cum † poetam sesum visere venissemus ne medici adventus nos inredisset." The copyist of the earlier part of this book seems to have been extremely unintelligent, not in the least understanding what he was copying; any vowel is written by him for any other, letters and whole syllables are omitted or interpolated, and letters are often absurdly grouped—for instance, nine lines further on, for the obvious "pecuariae athletae remuneremini nos," the Archetype has "pecuariathietae remune remininos." So perhaps some boldness in emendation is permissible.

Most of the passage above was easily and soon corrected. Obviously "insta" = "ista," "an quid" = "inquit," "ne" = "ni" (or "nisi—n^{ei}"), and "inredisset" = perhaps "impedisset"; but for "poetam sesum" no convincing emendation has been proposed. Ursinus gave "Paetum" (Aldus "Petam"), "fessum" taking "fessum" to mean "ill." But no example is to be found of the word having this meaning absolutè. Scaliger proposed "ad portam vis (for "vix") e re," etc., which needs no comment. In Excursus I I have given reasons for supposing that the scene of these conversations was at some port in or near Epirus. I would therefore propose—with extreme diffidence—to read as follows: "Ista, inquit ille, quae coeperat hic disserere . . . cum eum, portum ingressum, visere venissemus ni medici adventus," etc. One would then take "ni . . . impedisset" closely with "coeperat disserere," translating: "Precisely, answered Cossinius, I mean the discourse which Varro here was beginning . . . when we had come to call on him after he had entered the harbour (Cassiope or Corcyra), only the arrival of the doctor prevented our further conversation." The omission of "eum" might be explained as a case of haplography. "Portum" would be written "portū," while the "in" of "ingressum" might have been taken (as often) for "m"; but how "sesum" could have arisen from "gressum" I do not pretend to explain—unless one may assume that "g" was simply omitted. In II, 2, 12, "inigere est utile" (Ursinus) is given by all editors for the meaningless reading of the Archetype "interest utile." The general sense seems here to compel the correction, and "i" and "t" are frequently confused; but how is the "g" to be justified? If one might

assume that "ingressum" was abbreviated, the difficulty would be less, for "gr" in the abbreviated "ingreditur"—as given by Prou in his dictionary of Latin abbreviations—is very like an "S"; but I can find no indication anywhere as to the date of the MSS. in which this abbreviation is used.

II, 1, 21. "Et quae quemque morbum curatio curandi sequi debeat." Keil deletes "curandi." Jucundus's conjecture, "ratio curandi," seems preferable.

II, 4, 17. "Fructuariam idoneam non esse." "Fructuariam" is probably a gloss explicative of "idoneam."

II, 4, 17. "In eorum petu ("pecu" in Victorius's semivet. MS.) scrofae bis die ut bibant curant." Victorius suggested "foetu"; Keil prefers "partu," which suits "eorum" better. In this book "p" and "f" are several times confused (*e.g.*, II, 1, 17, "fastor" for "pastor," etc.). So perhaps here "in earum fetu" was originally written. Cf. Cicero, De Fin., iii, 19: "laborum bestiarum in fetu et in educatione."

II, 5, 1. "Tu vero, Murri, veni mi advocatus dum asses solvo† Palibus, si postea a me repetant ut testimonium perhibere possis." For "Palibus" Keil gives "Laribus," referring to a passage of Varro's cited by Nonius, to prove that asses were paid to the Lares. But this fact is stated by Varro only in relation to newly married brides. Aldus conjectures "Palilibus." It is nearly certain that these conversations took place at the Palilia, and probably that the place was an "aedes Palis" (cf. Excursus I). Instead of "Palibus" I would suggest "Pali bis"—"dum asses solvo Pali, bis si postea a me repetant," etc.

II, 5, 4. "Praeterea scio hunc esse . . . et hunc† Plautium locutum esse latine quam Hirrium praetorem

renuntiatum Romam in Senatum scriptum habemus." This passage seems hopelessly corrupt, no emendation in the least plausible has ever been proposed, and no story is related by Cicero, Livy, Pliny, Valerius Maximus, Julius Obsequens, etc., about Plautius, Hirrius, or a speaking ox, which seems to apply even remotely to anything in this passage. But Pliny, I think, gives a clue. In viii, 45 (last sentence), he says: "Est frequens in prodigiis priscorum bovem locutum: quo nuntiato Senatum sub dio haberi solitum." For this statement of Pliny I have been able to find no authority; the commentators are unanimously silent with the exception of Dalecampius, who does but refer one to Alexander ab Alexandro (v, 7, *sub fin.*)—a contemporary of Laurentius Valla. Alexander repeats Pliny. And here again all the commentators are silent. It seems to me probable that this very passage of Varro is the authority used by Pliny—who never quotes Varro's exact words—and that Varro's actual words were: "Et hunc Plautum locutum esse latine, quo miro praetori (*i.e.*, 'urbano,' cf. Suetonius, Claud., 22) nuntiato Romam, Senatum sub dio habemus"—"And that this 'Plautus' has been known to speak good Latin—on the announcement of which portent to the praetor at Rome we hold the Senate in the open air." The joke seems exactly in Varro's manner. Plautus was famous amongst the ancients for the excellence of his Latin, cf. Quintilian, x, 1: "Licet Varro dicat Musas Plautius sermone locuturas fuisse si latine loqui vellent," and on the other hand "plautus" (flat-footed, cf. Festus, *ad verbum*) was an epithet applied to the Umbrians, and the "vasti Umbriae boves" (Col., vi, 1, 2) were famous among cattle. It is to these that Varro alludes, II, 5, 10.

For "Plautium" for "Plautum" cf. II, 8, 2, "hinnius" for "hinnus." As for the rest I imagine that the scribe for "quo miro" read "quam irū," and remembering Hirrus already mentioned wrote "Hirrum" or "Hirrium" (of "h" interpolated there are numerous examples in this book, "hostia" for "ostia," etc.), "nuntiato" he read as "nuntiatū (nuntiatum)"—and "subdio" as "scribtū (scriptum)." The "in" ("Romam in Senatum") is perhaps a case of dittography, "in" and "m" being frequently indistinguishable in Pre-Carolingian minusculae.

II, 7, 1. "E quis feminas Q. Modius Equiculus etiam patri militari iuxta ac mares habere solebat." The words "etiam patre militari" seem quite irrelevant. Ursinus conjectured "etiam in re militari"—which makes excellent sense. Keil first adopted this correction, but rejected it afterwards, probably because of the difficulty of accounting for the corruption. "Etiam a parte" ("etiā a parte"—the second "a" disappearing through haplography) is plausible. Pliny in a chapter (viii, 42 end) which owes much to Varro, mentions the fact that the Scythians preferred to use mares rather than horses for military purposes, "Scythae per bella feminis (*i.e.* equabus) uti malunt, quoniam urinam cursu non impedito reddant." Varro frequently uses "pars" in the sense of "section," "department," and "a" meaning "in respect of," cf. I, 7, 5, "a qua parte vel maxime bonus aut non bonus appellatur," and II, 2, 2, "quae ita *ab* aetate," "in respect of age."

II, 7, 15. "Neque idem qui vectorios facere vult ad ephippium aut ad raedam quod ad rem militarem." I would insert "aut" after "vult," cf. the note to the passage in the Commentary.

II, 9, 16. "Ita enim sunt adsiduiores quod cum altero idem fit acrior, et si alter videm fiter aeger est ne sine cane grex sit." In the first place it is difficult to understand Keil's objection to "idem" (for which he substitutes "item," saying "'idem' . . . non habet quo referatur)," for the turn of thought is quite Varronian. The same dog becomes another, much fiercer—when he has a mate. As for the rest many unhappy emendations have been made, while no one seems to have noticed the anacoluthon—harsh even for Varro—"quod . . . fit acrior—et si . . . est, ne sine cane grex sit." "Est," I think, ought to be in the apodosis, where it is much needed—and the sentence might be written "et si alteruter fit aeger, est ut ne sine cane grex sit," "for so they stick better to work, for the same dog when he has a mate becomes fiercer, and if either of them falls ill, the flock need not be without a dog." "Est" would then be used as in Horace's "Est ut viro vir latius ordinet ‖ arbusta," or as in II, 1, 28, "est qui expleas . . . lacunam." With "ut" inserted the Latin is, of course, normal, the "ne" negativing only the words "sine cane." In these books "ut" is omitted two or three times, cf. II, 11, 1, III, 2, 16, etc., and Krumbiegel's index verborum at the end of Keil's "Editio Maior."

For "videm" I have written "uter," but it may be simply an echo from the words "altero idem" preceding. The "er" in "fiter" is, perhaps, due to the scribes writing the "er" of "aeger" prematurely and neglecting to correct it.

III, 1, 10. "In tuis quoque litteris." For "tuis" I suggest "nitidis" (haplography). The passage is discussed in the Commentary.

III, 5, 5. "Contra hic aviarium, quae mortuae ibi sunt aves ut domino numerum reddat, solet ibidem servare." Keil changes "hic" to "hoc" and indicates a lacuna after "aviarium." It seems much simpler to write "aviarius." There is then a much needed subject for "solet," there is no need to alter the "hic" of the archetype, the sense is perfectly plain, and there is no need to assume a gap in the text. "Um" is sometimes mis-written for "us," cf. III, 16, 5, where "neque idem quod cera cibum" is found in the Archetype for the obvious "neque . . . cibus," and a little later in the same section "favum" for "favus."

III, 5, 10. "quaad capitulum rutundum est" (so Keil). "Qua ad capitulum" should surely be written—for the sake of the sense and of the antithesis ("qua est quadrata")—and this is the reading of the Archetype.

III, 14, 3. "Et hunc (cibum) dum serpit non solum in area reperit sed etiam, si rivus non prohibet, parietes stantes invenit." Keil interprets thus: "Cochleae non solum cibum in area positum reperiunt, sed etiam stantes parietes cibi inveniendi causa ascendunt." This is no doubt what Varro means, but it is not contained in the text. Jucundus conjectured "in parietes," Ursinus "in pariete stante." Better, I believe, is "per parietes" for the omission of "per" may be explained as a case of haplography, and "invenit" has then its usual sense and governs "cibum." Schneider objected to "stantes" on the ground that all "parietes stant," but the word is used emphatically as Horace's "vides ut alta *stet* nive Candida || Soracte," and in antithesis to "area." The snail not only crawls about the "area," but even climbs the perpendicular walls.

III, 16, 32. "Eximendorum favorum signum sumunt

ex ipsis † viris alvos habeat nem cōgerminarit coniecturā capiunt si intus faciunt bombum et cum intro eunt ac foras et si opercula aluum cum remoreissi favorum foramina obducta videntur membranis cum sint repleti melle." Scaliger's remark on this is "Non est locus inquinatior isto, et sane eum emendandi omnem prorsus spem abieci"—and Victorius and Keil say much the same thing. Schneider rewrites the whole passage arbitrarily. I would suggest "Signum eximendorum favorum sumunt ex ipsis (fures alvos habeatne an contra exterminarit coniecturam capiunt si intus faciunt bombum et cum intro eunt et foras, trepidant) et opercula alvorum cum remoris (Keil) si favorum obducta videntur membranis—cum sunt repleti melle."

The cumbrous parenthesis is characteristic of Varro in these books. As to "fures" for "uiris," Varro (III, 16, 19) mentioned "fur" as a name given to drones, and the expulsion of them seems indicated by what follows. The copyist probably took the "f" for "s" (a common mistake, cf. "sit" for "fit," etc.) and found he had already written "s" in "ipsis." "Alvos" (nominative here) is frequently used by Columella and Pliny to signify the bees in the hive. For "nem" I have given "ne an." The corruption would be easy, as the MS. of which the Archetype was a copy had almost certainly the open a. The change of "cōgerminarit" to "contra exterminarit" is violent—but "c" and "t" are frequently (seventeen times) confused in these books (cf. "torium" for "corium," II, 5, 8, etc.), and the scribe may have read the "t's" as "c's" ("contra," I find, was sometimes written cōn), and his eye may have jumped the letters between cōn and "cerminarit" (cf. "a(d)vertendum" for "animadvertendum," I, 12, 2). The result

would be "concerminarit," made more like a Latin word by the change of the second "c" to "g."

Columella (IX, 15, 3) uses "exterminare" in this relation: "Hos quidem praecipiunt in totum exterminari oportere." In the phrase "et si favorum . . . cum remoreissi" Keil deletes, I think, the wrong "si," for it is Varro's constant habit to place his conjunction as near the end of the phrase as possible.

In the last clause "sunt" for "sint" seems necessary. In these books they are perpetually confused.

To the reading proposed support is given by Columella (IX, 15, 4): "Ergo cum rixam fucorum et apium saepius committi videris, adapertas alvos inspicies ut sive semipleni favi sint, differantur; sive iam liquore completi et superpositis ceris, tamquam operculis, obliti, demetantur"—and by Palladius (June, cap. 7), "Item cum fucos a sedibus suis, qui sunt apes maiores, grandi intentione deturbant matura mella testantur."

III, 17, 2. "Ubi lymphae . . . ministrant." Keil writes "lymphae" with a small initial letter in both editions. It should be written with a capital. The "Lymphae" are contrasted with "Neptunus" farther down, and "Lympha" is personified by Varro, I, 1, 6 ("Lympham et Bonum Eventum").

III, 17, 3. "Hirrus . . . duodena milia sestertia capiebat." This ungrammatical "sestertia" is found also III, 16, 11, and III, 6, 6. I feel sure that in all three cases "sestertium" ("sestertiū") should be written, for as I have already pointed out, nothing is commoner in these books than the confusion of "a" and "u" (twenty-one times).

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